

The Listener

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'The Resurrection of Christ': one of the frescoes by Fra Angelico (1387-1455) in the Convent and Museum of San Marco, Florence

Easter 1955

APRIL

ACID POP

Since the youth of the world, April, according to the chronicles, has been packed with headline happenings. Noah is said to have left the Ark in April. In more recent Aprils the Order of the Garter was instituted (1348); the good ship *Bounty*, with Charles Laughton as skipper, had a mutiny aboard (1787); the first movie was shown in New York (1896); and the Bank of England ceased to issue £10 notes (1943). Thrill after thrill for April. But what of the sombre anniversary that we so often neglect to respect on successive April 9ths? Yes... but we had to remind you. On April 9th, 1889, died Chevreul, "Father of Fatty Acids." What a charming soubriquet to find in print! Mother of the Gracchi, Sons of Thunder, Daughter of the West, Father of History, Sons of Battle, Father of Fatty Acids... the family honorifics roll down the roll of the years, and euphoniously does Chevreul take his place among the honoured. We need not lose our heads and become maudlin about fatty acids, Chevreul's brainchildren. They may block our drains, stimulate our phagocytes and nauseate our imaginations, but whatever fatty acids may be, let us raise our hats on April 9th and remember Papa Chevreul. Let us determine to be nicer, more respectful to all men of science.



At the Midland Bank we pay our respects in a practical manner, by our readiness to use all the resources of modern invention which seem likely to help us increase and improve the service we give to our customers.

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E A S T E R GETS ITS NAME

from the ancient Anglo-Saxon festival of the Goddess of Spring, Eostre, to whom the month of April was dedicated; but...

Easter gets its meaning

from the Resurrection of Jesus Christ. Who He was and what He did for the world are things made known only..

in the Christian scriptures

and to spread this knowledge among the peoples of the world is urgent; for above all things the world needs the new life which is God's gift in Christ.

The Bible Society exists to make the scriptures available to all men in the languages they speak. It is a means by which you can help to bring the message of Easter

to the peoples of the world

THE BRITISH & FOREIGN BIBLE SOCIETY

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The Retirement of Sir Winston Churchill

LORD SAMUEL pays tribute to a great Prime Minister

IT was said very truly, by John Bright, that men are not great statesmen merely because they happen to fill great offices. That is so, even with the highest office of all. Looking at the list of Prime Ministers over the last 200 years, we must allow that by no means all of them had personalities that matched their position. Indeed, there are not more than perhaps ten or twelve who would be generally agreed to rank with the great who still live in the halls of fame. We do not doubt that, among that small company, is Winston Churchill. What the verdict of the future historian may be we cannot foretell: but at least we can send on to him a message that this has been the judgement of contemporaries. A man's achievements must depend, not only on himself, but also on his times. This century has been an era of vast political upheavals and terrible wars. Here the occasion fitted the man: and the man, the occasion.

That Churchill, from his youth up, was ambitious, he would be the last to deny. But his ambition was justified by great talents, and an indefatigable industry. It was an honourable ambition to lead in public service; and the success was merited that fulfilled his hopes:

Thine to conduct—through ways how difficult!
A mighty nation in its march sublime
From good to better.

His character is many-sided; he is versatile in his interests; his career has been full of adventure. In politics, he was with us for ten years as a good Liberal; afterwards, for much longer, he has

been a good Conservative; always he has been both a fervent patriot and a true citizen of the world. But I do not know that he has ever been inconsistent with himself.

He meets life with gusto, and danger with zest. He is one of those whom danger does not intimidate but exhilarates. Yet he has plenty of practical caution and prudent restraint, when they are needed. That, in the course of his career, he has sometimes adopted or advocated policies that were mistakes, cannot be denied; but if, in a long life full of great responsibilities and grave decisions, he had made no mistakes, he would have been unique among the statesmen, not only of this country, but of the world.

There is a special kind of affection that an individual may feel for an institution. I think that all of us who have been for a long time, perhaps twenty years or so, in the House of Commons, do feel for it such an affection. Clearly that is so with Sir Winston Churchill. And the House returns it in full measure. He is very human, and that brings liking. He has wit; and there it has full scope. His wit is spontaneous, swift, often ironic, sometimes devastating. But it is never cynical, never ill-humoured or unkind. He may be scornful or angry, when scorn and anger are merited; but is never malignant, and he is neither self-assertive nor aloof.

It would not be just to say that he is variable; but he is certainly various—almost as various as Shakespeare himself. Sometimes he is Hamlet or Jaques, reflecting on the qualities and fortunes of men and the destinies of nations. And then there are moments—perhaps in the House of Commons at question-time,

if things generally are going well, when we may catch a fleeting glimpse of an amiably mischievous Puck. But most truly and most deeply he is Henry V: 1940 was his Agincourt; the nation's finest hour—and his own.

We passed through those two wars, the most widespread and destructive that have ever afflicted mankind; and both ended—after so much tribulation, so much sacrifice—in full victory for the cause that we

are sure was right. A democracy must judge its statesmen by results. Before and during the first world war, Churchill rendered great service; but in the second, he, more than any man, was the architect of victory. Beginning so young in the conduct of affairs, he is now full of years. Today* he retires from public office; but not, we hope, from public life. He carries with him the thanks of the British nation to a faithful servant of the people—and of mankind.

* Broadcast on April 5

The Problem of Talks with the Russians

By RICHARD GOOLD-ADAMS

LAST Friday, for the first time for four years, the Russian-sponsored east German authorities imposed a new toll on motor traffic using the *Autobahn* between Berlin and Helmstedt in western Germany. They raised the toll to the fantastic level of about £15 for a single journey for a large lorry; if the toll remains, it will cost the Berlin vehicles alone an extra £75,000 a week. When I myself have been in post-war Berlin, I have felt keenly that the city has grown accustomed to living on a razor's edge. The interest of this new move is that, once again, it gives some indication of Russian policy towards the west. When the Supreme Soviet meets shortly, a unanimous vote will almost certainly be taken to rubber-stamp the Kremlin's threat to break off the Anglo-Soviet and Franco-Soviet treaties. This will have little practical meaning, but they feel that we must be punished for ratifying Western European Union and going ahead with German rearmament.

Soviet Carrots

That is one side of current Soviet behaviour. The Russians, however, know all about the art of using the carrot as well as the stick. And they have recently mentioned or hinted at three ways in which, if we cared to accept their terms, some progress towards an agreement between east and west might be made. One, the most immediate and substantial, is over Austria. During the past few days, Herr Raab, the Austrian Chancellor, has been invited by Mr. Molotov to go to Moscow soon after Easter to discuss the Austrian peace treaty. Having blocked the virtually agreed draft treaty for years, the Russians have now suddenly withdrawn their previous demand that occupation troops should stay on in Austria until there is a German settlement. Instead, they have asked for power to return to Austria if they foresee what they might interpret as another Austrian-German union—an *Anschluss*—and they are insisting that Austria shall not be free to make its own alliances. They want in fact to 'neutralise' Austria and I have no doubt they would then like to use it later on as a model for Germany itself. Their other two ideas are, first, to arrange talks on European security without discussing the German problem as such; and, secondly, to deal with Germany by talking direct with Dr. Adenauer's Government in Bonn, leaving the Western Powers out of it altogether.

These are all most complicated questions, and in view of the Russians' record we cannot take their proposals at their face value. One must know the background. And that is by no means easy. Over Austria, for instance, it means avoiding the kind of solution that will only make the much more important German settlement more difficult. Over a European so-called security system, it means recognising that no treaty would be worth the paper it was written on if the German question were left aside in drawing it up. And over direct talks between Moscow and Bonn, it means realising that for the Germans to accept Russia's terms would make nonsense of all the efforts during the past five years to have the Germans turn west instead of east.

This year's crucial problem of talks with the Russians presents a special challenge to nearly all that western civilisation stands for. Not only is our own fate genuinely at stake. A great deal will also depend on the way the negotiations are handled during the next few critical months; our western democratic governments can negotiate from strength only if they have the real convictions of their people behind them. In reality, it is one of the great differences between the free world and the Soviet bloc that, on our side of the conference table, governments depend on the people; on the other side, peoples depend on their governments. After the war, when for a brief moment individual Russians were permitted to make friends with their opposite

numbers in the Allied forces, some of them were cynically frank. 'You will find', they used to say, 'that in the new world ahead decisions will have to be taken on such complicated and such emotional questions that your democracies simply won't be able to cope with them. We must tell the people what to think'.

It is largely as a result of popular pressure that the western governments are now beginning serious diplomatic discussions among themselves to decide what subjects can be profitably discussed with the Russians. If Moscow is not to exploit our yearning for some kind of progress, it was never more important that we should all know our own minds. Personally, I believe that, with the decision to rearm Germany taken, we shall now get somewhere—on four conditions. The first, in general, is that we stick to our policy and carry out the first stages of German rearmament, even if it is slowed down and takes longer than the expected minimum of three years to produce the proposed twelve German divisions; the Russians are already trying to make that we do not even make a start. Secondly, over Germany itself, there can be no compromise on holding genuinely free elections before an all-German government is formed. Thirdly, also over Germany, there can be no withdrawal of foreign troops until a united Germany is in a position to make its own free choice on its own foreign policy. Lastly, in regard to any wider security questions, surely no new agreement can be accepted (since it would not last) if it were based either on the permanent division of Germany or on Germany's 'neutralisation', that is, on a denial of full freedom to choose its own foreign policy.

In speaking of these four western conditions and, earlier on, of the different Russian approach, I have been dealing with the substance of the possible big-power talks—what they might be about. More immediately important is the procedure: how talks are to be arranged and who will attend them. I personally felt that it was a pity Sir Winston Churchill chose to get out of step with his allies and again urged talks between heads of governments without other preparation; it would not in any case have done much good last year to have concluded an agreement with the now deposed Malenkov. Almost all the evidence of previous talks with the Communist Powers proves that the only way to get anywhere with them is by hard negotiation on details. And this means preparation by ordinary diplomatic contact, even before the Foreign Ministers meet.

The Place of Germany

Here in the west, different countries want different things. If Dr. Adenauer is to retain his support in Germany for Western European Union, he will have to be allowed a prominent part in helping to arrange western talks with Russia. For Britain, America, and France, on the other hand, while we would be crazy at this stage not to give the Germans an equal place in preparing talks on Germany, we cannot accept their equal voice with our own on problems such as those which arise out of the allied occupation of Austria. Then, there are the smaller Nato Powers, like the Belgians and Dutch; they must have their say. And how far are the seven Western European Union countries now to work as a team—as the Italians very much hope?

In sorting all this out, April will be a month of immense activity leading up to the Nato Council meeting in May. By June, I certainly hope we can sound out Mr. Molotov at the United Nations tenth birthday celebrations in San Francisco, and perhaps hold the talks in June. For the statesmen must make no mistake: in spite of all the difficulties these talks are a vital and urgent problem, and people will not be fobbed off by useless delay.—*Home Service*

Towards a Sudanese Sudan

By GEOFFREY GODSELL, B.B.C. Middle East Correspondent

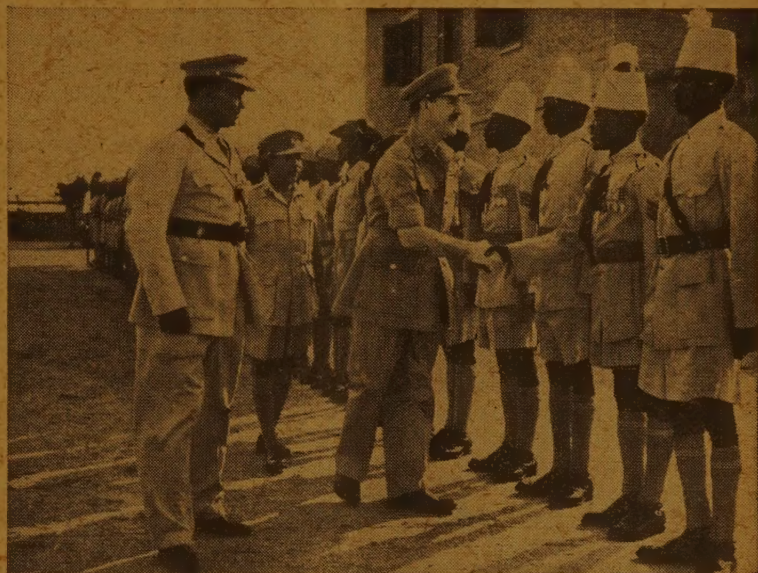
WITHIN the near future the Sudan Parliament is to ask the United Kingdom and Egypt to set in motion the final process whereby the Sudanese are to decide their own future. Under the Sudan Agreement of two years ago the Sudanese get the choice of two alternatives—either complete independence, or, as the agreement puts it, to link the Sudan with Egypt in any form. During five weeks in the Sudan, every Sudanese I have asked has told me he wants complete independence. They have been Sudanese in all walks of life, some of them supporting the Government and some the Opposition, and most of them estimate that in the whole country there are probably no more than five per cent. who favour any link with Egypt that would limit the sovereignty of the Sudan. The tide of Sudanese nationalism is rising fast.

In the elections of 1953, the first elections after the Sudan Agreement, the people voted into power the National Unionist Party. This was a newly formed coalition of some half-dozen political groups that all leaned towards Egypt. But when the party fought the election, it did not commit itself to any particular relationship between the Sudan and Egypt; what the party was committed to was getting rid of the British Administration in the Sudan. And to that extent it was anti-British.

For most of the Government's first year in office, the great cry was 'Sudanisation'—the compulsory removal of British officials from government jobs, and their replacement with Sudanese. The Sudan Agreement provided for the removal of the British from the political administration, the police, and the Sudan Defence Force, and a committee was set up to carry this out. The agreement also gave the committee power to Sudanise any other government post if the man holding it was thought likely to impair the free and neutral atmosphere needed for self-determination. When the committee got down to work, it interpreted its terms of reference broadly. The committee reviewed about 1,000 jobs held by British officials; it decided that some 600 of them must be Sudanised. In addition to these, some 200 British officials have given notice rather than continue to serve in the Sudan under the changed conditions. This will leave about 200 British officials still working for the Sudan Government at the end of July. Many of the British who have been given notice, or who themselves have given notice, are highly skilled technicians:

railway and telephone engineers, for example, veterinarians, and irrigation experts; this means, of course, that the Sudan Government is looking for people to take their place. In some cases, suitable Sudanese are not available, and the Government is trying to recruit neutral experts from abroad—in other words, non-British or non-Egyptian technicians. The Minister of Public Works went on a recruiting trip to Europe late last year, but, so far, very few foreigners have arrived in the Sudan to enter government service.

Most people agree that the degree to which Sudanisation was pushed, particularly in the technical field, is bound to create difficulties and problems for the Sudan Government. On the other hand, the Provincial Administration, the police, and the Defence Force have been in entirely Sudanese hands for some time now, and they are all functioning satisfactorily. A senior British official in Khartoum told me the Sudan



'Sudanisation' of the Sudan Defence Force: Major-General R. L. Scoones, the British Commandant, saying goodbye to some of his N.C.O.s when he handed over to his Sudanese successor, Lieut.-General Ahmad Mohed (behind) in August, 1954

Civil Service might be short in quantity but it was good in quality, with a reservoir of experience and common sense. 'In its Civil Service', he said, 'the Sudan is more fortunate than many other countries that have recently gained their independence'. Many Sudanese tell me they never believed the British would leave the Sudan. They thought the British would find some way to avoid honouring their pledges in the Sudan Agreement. But now the British are going; in fact, well over half of them have gone already, and the Sudanese are seeing them go. Doubts and suspicions about British intentions have been dispelled, and the attitude of the Sudanese towards the British is changing. The Prime Minister, Ismail el Azhari, who would have nothing to do with the British Administration until he was elected to office, said the Sudanese would never forget how Britain, in a spirit of noble courage, was faithful to her pledge to implement the Sudan Agreement smoothly. History, he said, was beginning to note down on its pages the final chapter about the real intentions of those who had lived among the Sudanese for more than fifty years. And the effect of this chapter, he said, would remain alive in the minds of future Sudanese generations.

This is a far cry from the election campaign of 1953; or even from a few months ago, when the force of Sudanese nationalism was directed against the British. With the British on the way out, the force of that nationalism has now been switched against the Egyptians. Egypt has a vital interest in the Sudan, or, more accurately, in the waters of the Nile, without which she cannot live and which wind across the whole length of the Sudan before reaching the Egyptian border. So perhaps it is natural that the Egyptians have hoped that the Sudanese will choose to link their country with Egypt, as they are free to do under the Sudan Agreement. Certainly the Egyptians have been, and still are, working hard to persuade the Sudanese to make that choice. The leaders of the National Unionist Party, the present Government party, have long enjoyed the patronage of the Egyptians. Last year, the Egyptian Minister for Sudan Affairs, Major Salem, came to the Sudan and appeared on political platforms with the Prime Minister, Ismail



Major Salah Salem, Egyptian Minister for Sudan Affairs (left) with Ismail el Azhari, the Sudanese Prime Minister (right) during a visit to Khartoum. Centre is Major-General Abdul Hakim Amer, Commander-in-Chief, Egyptian Armed Forces

el Azhari. Senior Egyptian officials of lesser eminence have travelled to and fro between Cairo and Khartoum; Cairo radio makes special propaganda broadcasts to the Sudan; Egypt distributes newspapers free of charge in the Sudan; and large sums of money are coming into the country from Egypt, ostensibly for welfare works, for the building of mosques and schools. There is little doubt that the intensity of these Egyptian efforts has had a boomerang effect.

The Opposition parties, particularly the Umma Party, have complained bitterly in parliament about what they say is Egyptian interference in the Sudan. In private conversation, Opposition leaders say they feel the Sudanese are being let down by the British; they allege that the British are conniving at what they call Egyptian interference, and claim that it is part of a deal at the time of the Anglo-Egyptian Agreement on the Suez Canal Zone base. The Government have complained, too, directly to the Egyptians themselves. The Secretary-General of the National Unionist Party told me that the Government had made representations to the Egyptians telling them that their policy in the Sudan was making it all the harder for the party to carry the Sudanese people with it towards close relations with Egypt.

But it was an action of the Egyptian Government outside the Sudan that crystallised Sudanese feeling, as it is at present, towards the Egyptians. This was the removal from office last November of former President Nguib. General Nguib was, and still is, much loved in the Sudan. Though Egyptian, he has family connections with the Sudan, where he was born and educated, and the Sudanese look upon him as the main architect of the Sudan Agreement that has opened the way for them towards self-determination. The Sudanese I have talked to are not convinced by the argument that General Nguib's removal from the Presidency of the Egyptian Republic was a domestic political necessity. And it is clear that Sudanese opinion remains deeply shocked and offended at the way the present military government of Egypt has treated, and still is treating, General Nguib. If the present Government leaders in Egypt appear in the newsreels in cinemas in Khartoum and Omdurman, there are usually catcalls and shouts of disapproval.

Feeling has also been aroused among the Sudanese by the Egyptian approach to use of the Nile waters. As agreements now stand, the Sudan can take from the Nile only one-twelfth of the amount of water that Egypt is using. The Sudan is using every drop of her amount of the water and desperately needs more to bring more land under cultivation. She has plans, therefore, for building a storage dam on the Blue Nile, at Roseires, near the Ethiopian border. This would give her seventy-five per cent. more water. But when a few months ago the Sudanese sought Egyptian consent to the building of the dam, not only did Egypt refuse what the Sudanese consider is a more equitable division of the Nile waters, but she also said she would make her consent to the Roseires dam conditional on Sudanese consent to the High dam. The High dam is an ambitious Egyptian scheme to build the highest dam and the biggest man-made reservoir in the world. It

would flood a large area inside the Sudan 100 miles along both banks of the Nile upstream from the Egyptian border, and would leave 50,000 Sudanese homeless. The Sudanese Government says it hopes talks will be resumed and the deadlock broken, but meanwhile, as a gesture, it has given orders for preliminary work to begin on the Roseires dam, and the Prime Minister has ordered the Minister of Irrigation to provide for the Sudan every drop of water to which it is entitled and which it needs. It is neither logical nor just, he says, that while water runs past the Sudan's doorstep, the country should die of thirst.

On the wider question of the future status of the Sudan, recent weeks have been marked by growing pressure on the Government, not only from the Opposition but also from within its own ranks, to come forward with a firm declaration for a sovereign independent Sudan. The Prime Minister has shown himself responsive to the rising tide. First, he gave it as his personal view that the Sudan should be an independent republic, just as Egypt was an independent republic, with Ministers from both countries meeting, perhaps yearly, to discuss matters of common interest. More recently, he said his Government was determined to uphold the sovereignty of the Sudan and to let no coloniser from either Egypt or Britain, as he put it, deprive the country of its liberty. Opposition spokesmen welcome these declarations, but fearful, as they said in private conversation, that the Government would be unable to shake off obligations to its erstwhile Egyptian patrons, these Opposition leaders continue to call for deeds to follow up the words.

Independence, then, is the great question that overshadows all other issues in the Sudan. On the home front, meanwhile, the Government is trying to strengthen Sudanese unity and to foster the idea of Sudanese nationality. It is in the southern provinces that it is facing its biggest task. There, Sudanese administrators from the north have succeeded British officials as governors and district commissioners. The northern Sudanese are Arab and Moslem; the southern Sudanese are truly African, and pagan or Christian, and they have a tradition of suspecting and fearing the northerners. The Government has sent the best men it could find to the administrative jobs in the south, and Europeans, with long experience in the area, spoke to me highly of them. Most of these northerners, I was told, are tackling their jobs very cautiously. It will take time to remove long-standing suspicions and prejudices, and this, as a Governor told me, can best be done by the northerners creating a good record for themselves.

Each side still seems to be watching the other apprehensively to see if it makes any mistakes but, so far, there have been no major mishaps. Indeed, Europeans in the south told me the general situation was much less tense than when northern officials first took over the provincial administration.

The relations between north and south are also being affected by some measure by developments in the struggle for Sudanese independence. The main weight of political opinion in the south is on the side of independence, so the closer the Government in Khartoum moves towards independence, the more acceptable does it become to the southerners who are politically conscious.—*General Overseas Service*

Why Capital Investment is Important

AUSTEN ALBU, M.P. replies to Colin Clark

MR. COLIN CLARK, to whom economists owe a great deal for his early studies of national income and the causes of economic progress, nowadays paints the economic scene with a broad brush. In his recent broadcast* he laid about him, not only at the Chancellor of the Exchequer and his advisers, but also at his fellow economists, because they insisted on the need to maintain a high level of investment in this country, particularly in industry. Mr. Clark, you will remember, put forward the idea that our rate of economic progress is no longer mainly dependent on increasing our stock of capital and that investment is becoming of decreasing importance in countries as highly industrialised as Britain and the United States. He based his arguments almost entirely on some recently published American figures which appeared to prove that the value of the industrial and commercial capital of the United States in relation to its annual national product reached a peak some time before 1919, and

has since been falling. In other words, each new increase in investment produces a more than proportionate increase in the national income.

From this and some quite inadequate figures for this country, I came to the conclusion that an annual saving of 5 per cent. of our national product will suffice to meet our capital requirements at home for the next few years. Whether or not this is a reasonable figure depends to a large extent on the meaning of the terms, capital stock, national product, and so on, which Mr. Clark used, and these he did not define. I doubt, however, if even the most favourable interpretation offers much relief from our present efforts.

Mr. Clark may not agree with the views of his fellow economists, but he goes a good deal further than most of them would be prepared to do in prophesying the future from past trends. Comparative measurements of the rate of investment and of the value of the stock of capital between different countries and different periods are generally con-

dered much too difficult to make for firm conclusions to be drawn from them. Even if such comparisons could be made I do not know how many economists would be prepared to take such a rigidly determinist view of economic progress as Mr. Clark and to assume that there are firm natural laws governing economic relationships, which can be used as a basis for practical decisions. Such a view takes no account of the Keynesian revolution in economic thinking which has led to greater public control of economic activity in accordance with social and political objectives. It also neglects the possibility that, from time to time, there will be leaps forward in human inventiveness. The present appears to be such a time, with the development of nuclear energy, electronic computing and controlling machines, and a whole range of new synthetic raw materials. The exploitation of these inventions is possible only with very expensive capital equipment.

The findings of two American research workers, Dr. Creamer and Dr. Goldsmith, were quoted by Mr. Clark. They were based on statistics from about 1880 and showed that the value of industrial and commercial buildings and equipment was roughly equal to twice the national product in 1919 and had fallen to one-and-a-quarter times today. There are no comparable figures, covering the same period of time, for this country. Dr. Creamer himself is extremely cautious in drawing conclusions from his figures and makes no attempt to explain why the trends he describes developed or to make projections into the future. In an introduction to his published study, Dr. Simon Kuznets points out that there was an element of historical chance, in the fact that the years of depression, and therefore of low investment, of the nineteen-thirties, were followed by the war period during which existing productive capacity had to be strained to the utmost and new equipment for peace-time industries was unobtainable. Unforeseen events are always liable to confound historical prophecy, although we hope that they will not again take the same form. Since the war, in the United States, there has been a large programme of capital expansion, and Creamer's latest figures appear to show a reversal of the trend and a rise in the ratio of fixed capital to output since 1948.

Better Methods of Management

I do not deny that Dr. Creamer's findings are impressive, particularly as they seem to apply in whatever way the stock of capital is measured and also to all industries; although for some of the newer industries the peak of the capital-output ratio was reached some years later than the average. There are a number of other explanations that spring to mind immediately to account for them. With growing output much industrial equipment has been more intensively used, and certainly fuller employment will lead to a lower ratio of capital to labour and to total output. I agree with Mr. Clark that better methods of management are also contributing to the more efficient use of capital. Modern management methods involve the careful planning of plant lay-out and utilisation; more accurate methods of stock control and raw material purchasing; and better methods of maintenance of machinery, so as to avoid breakdowns.

All these things do increase the output you are able to achieve from a given quantity of fixed or working capital, but although, as an engineer, I agree with Mr. Clark that many inventions are capital saving, I cannot agree that new machinery is installed only if it gives more output than the old for the same capital cost. When considering a new machine the production engineer compares the total cost per unit of output of all the factors of production—not only the capital charges and depreciation over a reasonable period, but also labour, maintenance costs, power, and rent of floor space. It is true that in some cases the overhead costs per unit will be lower; I was, for instance, surprised to learn recently that the cost of an automatic transfer machine for machining motor-car cylinder blocks, which has raised output per week by one-fifth and lowered labour costs by four-fifths, is less than the separate machines which it has replaced. This is due to the use of specially designed, standardised, and mass-produced units instead of the normal machine tools in common use. On the other hand, can there be any doubt that the overall capital costs per unit of electricity generated will be higher in nuclear power stations than in normal, steam-powered generating stations?

To proceed, however, from these interesting facts to conclude that we can reduce the rate at which we are investing in this country seems to me to be a dangerous illusion. What has been examined by economic research workers is what has happened in the past under conditions very different from those which exist today, especially in this country.

Apart from the accidents of historical chance, the three-quarters of a century during which these changes took place was one of relative *laissez-faire* in economic matters; the capital market operated with little government intervention, the trade cycle was a subject for anxious study, but not thought capable of control, and the level of employment fluctuated violently. Today we have governments pledged to the maintenance of full employment, which itself increases the pressure for an ever higher standard of living. It is probable that the limits of the gains to be obtained from the fuller utilisation of capital are now being reached, and further advances will for the time being need an increase in our stock of industrial capital equipment at a higher rate than the increase of our national income.

Out-of-date Equipment

Whatever the truth about Mr. Clark's analysis of the past, the main case against his practical conclusions is that he takes no account whatsoever of the special economic position of this country. We have, lately, been made only too well aware of the fact that much of our capital equipment is woefully out-of-date, and this applies not only to our industrial plant but also to much of our social capital. For years we have been allowing our railways to run down and become obsolescent. Our roads are nearly the most overcrowded in the world and fast becoming utterly inadequate. In spite of an enormous increase in our foreign trade little has been done to bring our docks up to date; the newest dock in London—the King George V—was already being built before the 1914 war. If output since the war has risen at a faster rate than investment the explanation, in my view, is that we have been failing to maintain the old equipment of our transport system. Mr. Philip Redfern, in the paper to which Mr. Clark referred, estimates that the total value of our fixed capital assets, excluding housing, rose in the years 1948 to 1953 by £1,200,000,000 at 1948 prices. This was achieved, however, in spite of a fall in the value of the assets in transport and communications of £400,000,000.

Merely to catch up with this past neglect, which was going on for many years before the war, is going to involve us in a substantial rate of investment in the next few years; and the return in higher output will not be immediate. The scale of expenditure needed can be gauged from the British Transport Commission's plan for the modernisation of the railways. The Government's present plans for the building of a number of new roads are generally considered to be only a preliminary to the large-scale road-building programme that must soon be undertaken.

While the same arguments apply to some extent to our manufacturing plant, the problem here is a different one. It is true that we still need to raise the level of production and reduce its cost by increasing efficiency; but we also have to make radical changes in our industrial structure. It is now widely recognised that we cannot hope to maintain, let alone expand, our exports of many of those types of goods which once formed the staple products of our overseas trade, but that we must change over to the manufacture of more elaborate products, beyond the technical competence of our customers to make for themselves. To some extent, we have been doing this since the end of the war, but the process has much further to go and it must involve a considerable investment in plant and machinery in the new industries that need to expand. Examples of industries in which investment has been at a high level and whose exports have risen greatly since the war are oil refining, chemicals, motor-cars, agricultural tractors, aircraft, radio and electronic equipment, and excavating and earth-moving machinery. In the future, electrical generating plant and machinery and industries based on nuclear energy can be expected to make rapid advances; while it is unlikely that we can continue to expand our exports of, for instance, motor-cars and domestic electrical equipment. The rate of scientific advance in some of the newer industries is rapid and quickly renders existing plant out of date, involving heavy capital expenditure in its replacement.

Scarcities in Raw Materials and Power

But there is another problem which, although we face it in common with all industrial countries, is going to be especially severe for us. This is the increasing difficulty of obtaining raw materials and power as the reserves of the higher-grade ores and most easily mined or grown materials are used up. The speed at which this process takes place will be accelerated as underdeveloped countries become industrialised and increase their consumption of raw materials. From the point of view

(continued on page 619)

The Listener

All communications should be addressed to the Editor of THE LISTENER, Broadcasting House, London, W.1. The articles in THE LISTENER consist mainly of the scripts (in whole or part) of broadcast talks. Original contributions are not invited, with the exception of poems and short stories up to 3,000 words, which should be accompanied by stamped and addressed envelopes. The reproductions of talks do not necessarily correspond verbatim with the broadcast scripts. Yearly subscription rate, U.S. and Canadian edition: \$5.00, including postage. Special rate for two years: \$8.50; for three years: \$11.50. Subscriptions should be sent to B.B.C. Publications, 35 Marylebone High Street, London, W.1, England, or to usual agents. Entered as second-class mailing matter at the Post Office, New York, N.Y. Trade distributors within U.S.A., The Eastern News Company

Thoughts at Easter

WHETHER one is a Christian or not, the great Christian festival of Easter offers us all a period for reflection, an opportunity of standing back from our daily tasks and considering the context in which we live our lives and some of the influences that play upon them. For many the chief of these influences is the ever-present thought of all that is implied by the existence of the hydrogen bomb. Just as the thought may be held in the front of the mind or thrust firmly to the back of it, so the influence may be one we are, or on the other hand are scarcely, conscious of: but in either case the influence is there. So, too, the nature of the influence may have various consequences, temperament and upbringing being among the determining factors. The pessimist will see darkness ahead; the optimist will observe, not in the bomb itself but in the skill and research of which it is an outcome, the dawn of a wonderful new world. The scientist by virtue of his training may be immune from the extremes of optimism or pessimism concerning the use of the bomb, conscious that it is his mission to explore the physical universe and that it is for others to decide whether the products of his experiments and discoveries shall be put to good or evil purposes. The moralist, concerned with the way life should be lived, will look on the scientist's work as inevitable (human curiosity being what it is) but as largely beside the point in relation to human conduct and the values on which that conduct should be based; the scientist, in the moralist's view, creates nearly as many problems as he solves, and in so far as the hydrogen bomb is the result of the scientist's work, the moralist may well echo the sentiments of the Archbishop of York and wish to God that 'those hateful weapons' had never been invented. However, they have been invented and whatever other emotions they engender in us the thought of them strikes fear into the hearts of normal human beings.

The only thing to fear is fear, declared the late President Roosevelt. On the other hand it has been said that early and provident fear is the mother of safety. It has also been said, in a rather broader context, that the fear of the Lord is the beginning of wisdom. In the language of the day, it depends what you mean. Fear may be a deterrent but it is hardly acceptable as a basis for behaviour. 'Perfect love casteth out fear'—and if it is not given to us to attain this ideal, we may agree at least that fear is an emotion that in human experience should be overcome. Any attempt to eradicate the fear of the hydrogen bomb leads the discussion perhaps into the psychological field, certainly into the controversial field of international affairs: all one can say about that here is that the problem presents a challenge to statesmanship of a dimension unparalleled in human history. There again speculation on the future will range from dark foreboding to an undimmed confidence in the providential purpose and the divinity that shapes our ends.

Every argument can be countered, but to range oneself on the side of those who believe that man has it in him to come to terms with himself and with the products of his own curiosity and ingenuity is in itself a reinforcement of that belief. It is more than to express a hope. It is to declare a faith. 'You can do very little with faith, but you can do nothing without it'—that is a true word; and if at this season of the year, as Nature renews herself, we too lift up our hearts, shall we then not be answering the call of a spirit which bids us to live and not encompass our own destruction—even if the call be no more than an echo or reflection of the burning faith with which Christians at Easter greet the risen Lord?

What They Are Saying

The Soviet attitude to four-power talks

THE PROSPECTS FOR four-power talks now that the Paris Agreements are ratified were widely discussed in broadcasts from both east and west. Broadcasts from the Soviet sphere were at pains to explain that they had never declared that ratification would make impossible four-power talks on all subjects; but only that implementation of the Paris Agreements would make impossible four-power talks on German reunification.

A speaker in a 'Russian Hour' broadcast from Vienna said he had been repeatedly asked in the past few days:

Has the U.S.S.R. not declared many times that east-west talks will be impossible after ratification of the Paris treaties? Do the recent statements by Bulganin, expressing readiness to negotiate, mean that the Soviet Union has now retracted its previous statements?

The speaker went on:

The Soviet Union has never declared that east-west talks will be altogether impossible after ratification of the Paris treaties. True, ratification makes negotiations on the question of Germany's reunification senseless and impossible. As regards this question, the execution of the Paris Agreements would render talks impossible.

The speaker referred to the Austrian Chancellor's forthcoming visit to Moscow. After criticising the Western Powers for ignoring the Soviet proposal for a four-power conference on Austria, he concluded:

This proves the prescience of those who always said that Austria could obtain her freedom and independence only if she relies on friendship with the Soviet Union and snatches the state treaty away from the Western Powers.

Broadcasts from east Germany also referred to 'idle talk' in the west that the policy of 'first ratify and then negotiate' had after all been right, since Bulganin was still willing to negotiate. The Russians, said one east German broadcast, had never opposed four-power talks, but in regard to such talks about Germany, 'a stiffening rather than a softening of the Soviet point of view is noticeable':

Hence the cancellation of the Paris Agreements must precede negotiations on Germany. . . . The issue is war or peace. . . . Partition in the end means war.

Another east German broadcast stated:

The Soviet attitude has not changed in the least. Its statement that ratification renders negotiations on German reunification void is a remains fully valid. . . . It must be stated clearly: renunciation of implementation of the Paris Agreements is the prerequisite of successful negotiations on Germany.

A Deutschlandsender broadcast, after claiming that those who had ratified the Paris Agreements constituted 'a negligible minority who fear the people', said that the young in east Germany knew how to defend themselves:

Those who intend to attack the German Republic should realise that behind her stands a camp reaching to the Pacific, whose armies will never be defeated.

On April 3—several days after the decree announcing increased control on west German vehicles entering east Germany—new measures were announced increasing the armed strength of east Germany.

Moscow radio quoted *New Times* for a warning against 'illusion' that the Soviet Union had acquiesced in the Paris Agreements. *Izvestia* was quoted as saying:

Contrary to the assurances of their advocates, the Paris Agreements are incompatible with the unification of Germany. . . . The peace-loving German Democratic Republic will not consent to unification with the militarised German Federal Republic involved in military groupings.

Moscow and satellite broadcasts continued to claim that France had only ratified as a result of 'unheard-of blackmail, threats, and pressure' by Washington and London, and in opposition to the 'will of the people.' But, said a Moscow broadcast to France, ratification would not end the fight against west German militarisation: 'a new resistance movement is emerging' in France. From France itself, the left-wing *Franc-Tireur* was quoted as saying that though the Kremlin had appeared to accept ratification as a *fait accompli*, this did not mean that it was resigned to implementation of the Paris treaties:

The game is not yet over. The Kremlin's new method of negotiation on Austria with the aim of neutralising her is a prelude to the second instalment of the battle for Germany.

Did You Hear That?

LAMB ON SOUNION

EASTER IS A WONDERFUL TIME in Greece', said BARBARA WHELPTON, in a talk in 'Woman's Hour'. 'I had climbed up to one of the monasteries at Meteora, perched on its pinnacle of rock. I had seen the impressive Good Friday procession in a village. I had spent an unforgettable Easter Saturday taking part in the magnificent midnight service in Athens, and had watched Athenians, intoxicated with joy that the miracle of Easter and the spring was a reality again. I had seen the tiny pin-points of light from the thousands of candles being carried by worshippers as they returned from the churches in the hills round Athens. Now, it was Easter Day and we were going to do what all Greeks do, roast a lamb over charcoal out in the open air.

'We had decided to go to Sounion as I had not seen the temple yet. Obviously most of the inhabitants of Athens had decided to go there too, for the bus was absolutely crammed with people and the top of the bus was loaded with roughly wrapped lambs, spits, sacks of charcoal, and all kinds of gadgets. We rattled along the bumpy road, everyone singing and chattering and peeling the brightly dyed shells from hard-boiled eggs. All the way along the road people were trekking out into the country, in cars and lorries and carts, on bicycles, on donkeys, and on foot.

'We climbed off the road and stumbled along on the rough hillside through brilliant anemones, camomile daisies, virginia stock, and deep-red poppies. Enormous lime-green lizards, like little crocodiles, slithered away under our feet, and, on the crest of the hill, a shepherd stood in a pink shirt with a rough goat's wool cloak slung over his shoulder. He hailed us and gave us the Easter greeting—*Kaló Pasca*—"Happy Easter".

'Then I saw the temple—just a few graceful columns rising out of broken blocks of marble, crowning a hillside of flowers sloping down to the shining sea. The flowers were a haze of blue and pink and saffron among the warm, pink stones and dull-green grass. The temple shone white in the sunlight against the deep blue sky and cast purple shadows on the ground. A temple built more than 2,000 years ago as a home for the God of the Sea, so that the fishermen and sailors should be protected from the winter storms along this dangerous coast'.

HANS ANDERSEN EXHIBITION

The 150th anniversary of the birth of Hans Andersen took place last Saturday. BARBARA HOOPER, a B.B.C. reporter spoke in 'Radio Newsreel' about an exhibition being held in London to commemorate this anniversary. 'Hans Andersen', she said, 'paid several visits to Britain and had many friends here. He stayed five weeks with Charles Dickens'

family at Gadshill, and a book by Sir Henry Dickens—one of a number giving reminiscences and personal impressions of the Dane that are in this exhibition—records that he was a frequent source of embarrassment to the family. Once he strung a daisy chain round a hat belonging to Wilkie Collins, who went for a walk without noticing it.

'But though Dickens' relations at first found their guest "a bony bore" the two authors were excellent friends and wrote each other affectionate letters. There is one here from Andersen beginning, "My dear and beloved Dickens. You are so vividly in my thoughts that I often think I live in the same house with you, and therefore put off writing"'. And Dickens wrote thanking him for a present: "Your book made my Christmas fireside happier—come to England again soon."

'Among the early translations of the stories into English is a slim volume called *A Poet's Day-dreams*, dedicated to Dickens "as a token of kind remembrance by his Danish friend and admirer", and another exhibits a copy of *Oliver Twist* inscribed in Dickens' own handwriting as a present to Andersen. Elizabeth Barrett Browning knew him, too. In one of her letters, shown here in a published copy, she describes him as "very earnest, very simple, very child-like"'.
'Hans Andersen wrote much besides the immortal fairy tales. There are first editions on view spanning his whole lifetime—from a dramatic poem about a robber, published in a magazine when he was seventeen, to extracts from the homely diaries he kept during the last seven years before he died. He wrote four novels, all displayed here in English editions from the library of Dr. Richard Klein, whose private collection of Hans Andersen literature—some 1,700 items—is the biggest in Britain.

'Andersen had many skills. He was a prolific sketcher; and even the delicate charm of many illustrations to his books, close by, does not detract from his own drawings. Just as delightful are the black-and-white paper cuts, for which Andersen was also famous, gathered together in a book, patterns as whimsical and original as his stories. And if proof were needed of his universal popularity as a storyteller, it is here in a collection of his books, published in more than sixty languages, including Eskimo, Afrikaans, Yiddish, Ukrainian, Arabic, Siamese, and even in shorthand and braille'.

THE GOLDEN CODEX
Early this year a medieval masterpiece was offered for sale in western Germany—a beautifully illuminated manuscript of the Gospels called the 'Golden Codex of Echternach'. It had been in the possession of a family of the Duke of Saxe-Coburg-Gotha for 150 years. The Duke said that



The Temple of Poseidon at Sounion: a photograph taken at sunset



Two statuettes representing characters from Hans Andersen stories, 'The Tinder Box' and 'The Chimney Sweep'

he needed the money to pay the pensions of his numerous servants who once helped to administer his former estates in what is now the eastern zone of Germany. The price he asked was £100,000. DOUGLAS STUART, B.B.C. correspondent in Bonn, spoke about this in 'Radio Newsreel'.

'Immediately it became known that the Golden Codex was for sale', he said, 'offers to buy it came from all over the world, but the Duke preferred to keep the treasure within the frontiers of Germany. Competition for possession soon narrowed down to the museums of Munich and Nuremberg, but Munich could not find the money. Could Nuremberg? The museum acted swiftly. Its Director sold a sixteenth-century altarpiece of Lucas van Leyden in the United States for £50,000. He now possessed half the purchase price of the Golden Codex. The Federal and Bavarian authorities then agreed to make up the rest of the sum asked by the Duke of Saxe-Coburg-Gotha. The Golden Codex, therefore, has become the possession of the city of Nuremberg.

'The value of the Golden Codex is derived from its age and beauty. The Holy Roman Emperor Otto III ordered it to be made nearly 1,000 years ago. The golden cover enclosing the Gospels was created by the goldsmiths of Trier, the city founded by the Romans on the Moselle River. These medieval craftsmen decorated the golden cover with filigree work set with precious stones, with rows of pearls and with delicately coloured inlays. On the front cover is a centre-piece of ivory, depicting the Crucifixion of Christ. At the foot of the Cross stand two Roman soldiers. Round the ivory relief are pictures of the Emperor and his mother, the Empress Theophano, watched over by six saints.

'The original manuscript, enclosed within the cover made by the goldsmiths of Trier, was removed at the beginning of the eleventh century. It was probably given as a gift to one of the Princes of the Holy Roman Empire. This manuscript is now in the National Library in Paris. It was replaced by another beautifully illustrated and illuminated manuscript, now known as the Golden Codex of Echternach, during the second decade of the eleventh century.

'For 700 years, the Golden Codex lay undisturbed in the Echternach monastery, in what is now the Grand Duchy of Luxembourg. Then came the French Revolution, Napoleon, and the secularisation of Church property. The Duke of Gotha bought the Codex for the equivalent of a year's salary of one of his minor court officials'.

NAPOLÉON'S PLACE OF EXILE

Longwood House, where Napoleon spent his exile, is being redecorated so that it will look exactly as he found it, containing many of the everyday things he used. VIOLET GILMOUR has recently returned from St. Helena and spoke about Longwood House and its associations with Napoleon in 'The Eye-witness'.

'Longwood House', she said, 'is about five miles from Jamestown—a long, low, T-shaped house, painted pink except for the end of one wing, which is grey. The windows are green with small panes; they give the building a neat appearance, as does the garden with its hedges and its cypress trees and oaks. Napoleon used to eat some of his meals under the oaks when it was not foggy, as it so often is in St. Helena.

'There are to be two globes inside the front door—one of the world and one of the stars. They are marked with finger-nail scratches, and when I asked what these scratches were I was told "Napoleon used to spin them when he came in the front door". There is also a billiard table. The Emperor could not play billiards but he used to roll the billiard balls with his hands, and he found the table useful to spread his maps on. The dining room was going to be redecorated about the time I left St. Helena. The wallpaper is an exact replica of the one which Napoleon knew—red and gold, and very regal. The chairs are

upholstered in blue and gold and the mantelpiece is of black marble. Much of the woodwork of Longwood House was destroyed by white ants years ago, but the building has been repaired, and as a museum it will contain many things Napoleon used. For example, this is his bath, an antique affair with wooden sides. They told me Napoleon spent hours in it—he used to dictate his memoirs from it. And there are two camp beds. He used to sleep on a camp bed during his campaigns, and it was a camp bed for him even at Longwood House.

'In St. Helena you hear tales of the rumours which once passed up and down the streets of Jamestown and from fort to fort on the cliffs, rumours of rescue. One of them was that Napoleon was to be rescued by balloon; another was that he was to be rescued by a sort of primitive submarine rowed by three or four men'.

'THE SHEEP UNDER THE SNOW'

In 'The Northcountryman' KATHLEEN KILLIP recalled a visit to George Borrow paid to the Isle of Man 100 years ago. 'He did not waste a moment upon his arrival', she said. 'His host in Douglas knew a great deal about the songs of the island and told Borrow about the

old "carvals", special songs composed for singing at the services held in Manx churches on Christmas Eve. The "carvals" were Bible stories turned inside out. In many of the farmhouses and cottages on the island Borrow learned there were old, smoky, blackened, begrimed, leather-bound books, most dear to their owners, in which these old "carvals" had been written down. There and then he made up his mind to gain possession of one of these, if he could, before he left the island.

'His first expedition was a little discouraging. He had been examining some Runic stones in the churchyard at Onchan

when he met a Manx woman and immediately began to question her as to whether she knew any Manx songs. She told him the only songs she knew were hymns and psalms. But Borrow persisted. Did she know "The Sheep under the Snow"? "*Kiree for Niaghtey*" she said, giving it the Manx title; of course she knew that. Every Manx person knew it but she told him she had no idea that a grand gentleman the like of himself would be wanting to know about such a song.

'One of Borrow's happiest expeditions must have been the one he made to Laxey. He walked from Douglas past Groudle Glen, where the trees are like gold in September, through Baldrine and Ballabeg with the mountains and the sea keeping him company. In those days Laxey was a prosperous mining village, but Borrow's interest was in wonders of the past not in wonders of the present. He made friends with a Laxey miner, John Skillicorn, a man after his own heart, for his conversation was all about the legendary beings of the island—the phynoderee, the Ben Varreys, the Glashtyns. One day in September the pair of them set out to climb Snaefell, from whose peak the Manxman boasts he can see six kingdoms.

'To Borrow this cold, forbidding country must have brought untold delight. For this was the country of the song that he loved so much "The Sheep under the Snow". Here in the bleak mountain hollows the shepherds had searched for their sheep and found them lying dead under the snow. It was here, too, that one of his greatest wishes was granted for as they rested on the mountainside John Skillicorn gave him a book of "carvals". Later Borrow wrote in the book: "Carols in the Manx language, some of them composed by John Skillicorn a miner of Laxey. Presented by him on the side of Snaefell to George Borrow, 1855"

The relief of the Emperor Hadrian reproduced on page 510 of THE LISTENER of March 24 is at Eleusis and not, as stated in the caption, at Ephesus.



Longwood House (where Napoleon lived from 1815 until 1821) after the completion of recent repairs to the outside fabric

Violet Gilmour

Law in Action

Officiously Encouraging Litigation

A. L. GOODHART on the law of maintenance

THE gentle Isaak Walton, in his famous book *The Compleat Angler*, quoted his friend Sir Henry Wotton as saying that angling was 'a rest to his mind, a cheerer of his spirits, a diverter of sadness, a calmer of unquiet thoughts, a moderator of passions, a procurer of contentedness; and that it begat habits of peace and patience in those that professed and practised it'. This is undoubtedly a true picture of anglers in ordinary circumstances, but when their rivers or lakes are threatened with pollution by some factory they become veritable tigers in defence of their rights.

Fishing Rights

It is, therefore, not surprising that the 150 members of the Derwent Angling Association, who held from Mrs. Martell a yearly tenancy of the right of fishing appurtenant to her land on the banks of the River Derwent, rushed to their legal arms when they believed that the Consett Iron Company was polluting the water in which they exercised their right. They themselves, being miners, steel-workers, and shop assistants, did not have the financial resources with which to defray the costs of such an action, so they turned for help to the Anglers' Co-operative Association to which their club belonged. The A.C.A., as we may call it for short, was founded in 1948 to promote the interests of anglers, and especially to maintain and improve the condition of all rivers and lakes containing fish; it has 250,000 direct and indirect members. It has established a fighting fund which it uses to guarantee the costs of legal actions brought by members to preserve their fishing rights. In the present case, its solicitors advised the Derwent Association that Mrs. Martell, as owner of the land, should be joined as a plaintiff, and she agreed only on condition that an indemnity against all costs should be given to her. The A.C.A. therefore gave her such a guarantee and a similar guarantee to the six trustees of the Derwent Angling Association.

With these indemnities as a protection, Mrs. Martell and the trustees issued a writ against the Consett Iron Company in January 1954, asking for an injunction and damages arising out of the alleged pollution. The lists were all prepared for battle when the defendant company took a step which may be said to have been as surprising as it was interesting from the legal standpoint. It asked the Court to stay all proceedings in the action until further order on the ground that the action was being illegally maintained by the A.C.A. because of the financial aid given to the plaintiffs. In the Court of first instance Mr. Justice Danckwerts refused the application, and the Court of Appeal has now unanimously affirmed his judgement. What has made this case so fascinating is that it involves a study of medieval history and of the gradual development of the common law, together with a consideration of present-day public policy.

In describing legal conditions in the thirteenth century, Sir William Holdsworth wrote:

In a relatively primitive society private war is the natural and most congenial remedy of those who are or think they are wronged; and, when the strength of the law makes a recourse to this expedient dangerous or impossible . . . much of the unscrupulousness and trickery which accompany the waging of a war are transferred to the conduct of litigation.

Nothing is more infuriating than to have a stranger joining in a private battle, except perhaps in Ireland, and so it is hardly surprising that the law beginning in the thirteenth century attempted to prevent such officious intermeddling, or maintenance, to use its legal name, by making it both a crime and a civil wrong. At first, maintenance covered almost any voluntary interference: even a witness who offered to give evidence might be held guilty of it, for he ought to have waited until he was asked what he knew. During the fourteenth and fifteenth centuries maintenance became a major hindrance to justice as the powerful barons used all the forms of law to harass their rivals. Thus in 1440 Mr. Justice Paston strongly advised a friend not to go to law with one who had the support of the Duke of Norfolk, 'for', he said, 'if thou do thou shalt have the worse, be thy cause never so true, for he shall else undo thee and bring thee to nought'; and in 1450 Jack Cade's proclamation said

that 'The law servyth of nought else in these days but for to do wrong'.

Then, in 1487, there began a great change when the Act *Pro Camera Stellata* gave to the Court of Star Chamber the authority to deal with the evils of maintenance, which was assigned the first place in the list of crimes. That court, which later degenerated into an instrument of tyranny so that its name became a synonym for injustice, acted with such vigour that by the time of Elizabeth all forcible or open perversion or defiance of the law had been put down. There remained, however, the indirect kind of maintenance which consists of interfering with the due administration of justice by giving, without lawful excuse, financial aid or other support to a litigant, either plaintiff or defendant. This has continued to be both a crime and a tort to the present day, although there has been only a thin trickle of tort cases during the past two centuries, and the crime of maintenance is, for all practical purposes, obsolete, or, at least, obsolescent, for no prosecution has been brought for more than a century. It is this lack of authoritative precedents which makes it difficult to state the present law with precision, but this is probably more of a hindrance to the student of the law than it is to the practitioner, who has to consider it only in the rarest instances.

We can begin our consideration of the law as it is today with the definition of maintenance given by Lord Justice Jenkins in the present case: 'The crime of maintenance is committed whenever a third party aids the prosecution or defence of an action in the absence of circumstances sufficing in law to justify the giving of such aid, whatever the motive or purpose of the person giving such aid may have been'. Admittedly this definition can be of only limited help, for it does not tell us what circumstances suffice in law to justify the aid. These we must find in the precedent cases. It is clear that there are certain justifications which have been long established and are not open to question: these are kinship, the relationship of master and servant, and motives of charity although it is not certain how far charity extends. Thus in the present case the Court of Appeal did not find it necessary to decide whether the aid given to the Derwent Angling Association could be described as charitable, as its members were working men, but it expressed grave doubts on this point. Perhaps the whole Legal Aid procedure which has recently been established can be described as a glorified form of charitable state maintenance, which is justified on the ground that it assists poor persons to obtain justice which might otherwise be denied to them.

'Common Interest'

The fourth and most important excuse is found in a common interest in the subject-matter of the litigation. But what is meant by a common interest? To this question the cases give an uncertain answer because the law does not ascribe to this phrase its ordinary meaning. Lord Sumner, in a cryptic aphorism, has said 'a common cause is not a common interest', even though the common cause may be of the greatest importance to the maintainer. Thus in *Alabaster v. Harness* [1895] 1 Q.B.339, the plaintiff, Alabaster, the proprietor of a newspaper, had in an article attacked a Dr. Tibbits, an expert who had been employed by the defendant Harness to report on an electrical machine sold by him. Harness financially supported Dr. Tibbits in bringing an action for libel against Alabaster which Tibbits lost. When Tibbits failed to pay the costs of that action, Alabaster sued Harness on the ground of maintenance, and recovered as damages the costs which Tibbits owed him. The Court held that Tibbits and Harness had had no common interest in the legal sense, because an action for defamation 'is a personal action, which in point of law only concerns the person who brings it'.

A similar view was expressed by the Court of Appeal in *Oram v. Hutt* [1914] 1 Ch.98, where the question at issue was whether a trade union was guilty of maintenance in paying the costs of a slander action which one of its officers had successfully brought against an impecunious defendant M. Lord Parker said that although 'it may have been vital for the association from a business point of view to controvert certain of the allegations made by M. against their officers . . . nevertheless . . .

this would not constitute a common interest . . .'. No legal wrong, it was said, had been done to the trade union when its officers had been slandered, even though the slander accused the officer of misconduct in his office, and not merely personally; and the union could have no claim to any part of the damages which he might recover.

At first sight these cases would seem to give strong support to the argument for the Consett Iron Company in the present case, for it is clear that no legal wrong had been done to the A.C.A. when it offered its aid, and that it had no claim to any part of the damages which might be recovered. The Court of Appeal was able, however, to distinguish these cases on the ground that they were concerned with defamation which is purely personal in character. Lord Justice Jenkins said: 'The pollution of a man's character or reputation by libel or slander is a matter personal to him, and he alone is concerned in the prosecution of any action brought in respect of it . . .'. With the greatest respect it may be suggested that, in ordinary experience, a society, such as a club, may be concerned if one of its members is defamed, and that it may require him to clear his name by action if he is to remain a member. If it can require him to bring an action, why cannot it support him in doing so?

Fortunately there was another line of cases, not concerned with defamation, in which a broader interpretation had been given to the term 'common interest', and it was these precedents which the Court of Appeal was able to follow in the present case. Thus in *Plating Co. v. Farquharson* [1881] 17 Ch.D.49., a manufacturer, who was disputing the plaintiff's patent, advertised for help from the trade towards the expense of an appeal. The Court of Appeal held that this was not solicitation of illegal maintenance as the manufacturers had a common business interest. 'It is', said Sir George Jessel, M.R., 'a common practice that if a patentee attacks one manufacturer the other manufacturers combine together to defend the case, so that the whole expense shall not be thrown on the one that is attacked'. Again, in *British Cash and Parcel Conveyors Ltd. v. Lamson Store Service Co. Ltd.* [1908] 1 K.B.1006, the Court of Appeal held that it was not illegal for the defendants to give a guarantee of indemnity to its customers who had been threatened with an action for breach of contract by a rival concern. After pointing out that 'the old common law of maintenance is to a large extent obsolete', and that the present list of exceptions is not exhaustive, Lord Justice Fletcher Moulton held that the defendants were entitled to give such an indemnity in the legitimate defence of their own business interest.

It was on this ground that the Court of Appeal in the present case held that 'persons engaged in a particular trade, or by parity of reasoning persons engaged in a particular profession or individually possessed of proprietary interests of a particular kind may lawfully form themselves into an association with a view to protecting at the expense of all, and if necessary by litigation at the common expense, the interests of each in the common field'. Each member of A.C.A., it was held, had a legitimate and genuine business interest in contributing to the financial support of an action brought by any other member in the expectation of similar support if his own legal rights were infringed.

The fact that Lord Justice Jenkins placed so much emphasis on the 'genuine business interest', leaves it uncertain whether other interests may constitute an exception to the rule against maintenance. In *Bradlaugh v. Newdegate* [1883] 11 Q.B.D.1, the plaintiff, who was well known for his views against established religion, had sat and voted as a member of parliament without having taken the appointed oath. The defendant, also a member of parliament, persuaded C., a man of straw, to sue Bradlaugh for a penalty, and gave him an indemnity against all costs and expenses. The House of Lords dismissed C.'s action with costs, and when he failed to pay them Bradlaugh brought an action on the ground of illegal maintenance against Newdegate. At the trial Lord Coleridge, C.J., gave judgement for Bradlaugh on the ground that although Newdegate had maintained C. in what he regarded as the cause of their common religion, there could not be said to be a common interest in the result of the action for the penalty.

On the other hand the case of *Holden v. Thompson* [1907] 2 K.B.489, has sometimes been interpreted as recognising that a community of religion may be an adequate justification for maintenance. In that case the defendants assisted two poor persons, who were co-religionists, to bring legal proceedings to remove two children from a Home at which there was religious instruction of which they disapproved. The Court held that this was not illegal maintenance, as the aid was given 'out of charity and religious sympathy'. The implication seems to have been that religious sympathy by itself would not have been enough. The question may therefore be said to be still an open one.

In his extremely interesting judgement in the present case Mr. Justice Danckwerts said: 'Unless the law of maintenance is capable of keeping up with modern thought, it must die in a lingering and discredited old age'. This raises the question whether it serves any useful function today. Is it reasonable to hold, as was held in *Oram v. Hutt*, and reaffirmed in the recent case of *Baker v. Jones* [1954] 1 W.L.R. 1005, that an association cannot indemnify one of its officials who has brought a libel action, which is of vital interest to the association, because technically the association has no legal interest in the subject-matter of a libel action? If we agree with Lord Dunedin in *Weld-Blundell v. Stephens* that the action of maintenance is 'a cumbersome curiosity of English law', is it not time that it were finally abolished? Cumberson curiosities may at times prove to be an irritating nuisance in the path of justice.

On the other hand, if it is abolished the way might lie open for a vindictive or spiteful man to stir up litigation against his enemy. He might, for example, aid and encourage his enemy's tenants to bring actions for breach of the repairing obligations in the tenancy agreements: and there are few ways of harassing a man more effectively than by making him face a multiplicity of actions at law. Perhaps the answer is that fortunately such cases are likely to be few, and that the cumbrous law of maintenance is plainly a sledgehammer to crack a very small nut. But whatever the view, none would deny that it would be in the public interest for the precise bounds of the law of maintenance to be more clearly marked. The anglers' case is indeed welcome so far as it has contributed to this process; but there is still some way to go.

—Third Programme

The Case for Research in Modern Architecture

By RICHARD LLEWELYN DAVIES

A FEW months ago I was in America looking at architecture and talking to architects. I am interested in hospitals, and one evening I asked some of my friends in New York where I could see a hospital which was not merely technically efficient—most new American hospitals are—but was also a really fine piece of architecture. With one accord they said there was no such thing: pressed, they said that hospitals, and indeed many other sorts of buildings, were now so complex that architects were overwhelmed by a mass of specialised technical requirements, to a point where creative design becomes impossible.

In Chicago, I saw the work of Mies Van der Rohe, tall blocks of flats beside Lake Michigan, and the new Illinois Institute of Technology. It is hard to describe the tremendous impact these buildings make—among the work I saw in the United States they stand alone—with calm

beauty, immense authority, and yet completely unassertive. I tried to discover by what means Mies Van der Rohe had succeeded, where so many architects had failed, bogged down by the complexity of their task. I found that his work depends, in great part, on a rejection of all planning to meet precise needs. His buildings simply provide undifferentiated space, which their users can employ as they will, or as best they can.

This brushing aside of the functional requirements has freed Mies Van der Rohe, and enabled him to make his very great personal contribution to architecture, a revelation of the exquisite architectural poetry which is inherent in modern construction, but it does not solve the general problem which architects must face, both in America and here: how are we to master the mass of knowledge—continually increasing in breadth and complexity—needed to design a building to-day? There



Aboyne Lodge Infants' School, St. Albans: one of several schools built as part of a development programme conducted by the office of the county architect

Photograph: 'Architectural Review'

are several sides to this problem: How far is the knowledge we need already available? Where it is lacking, how are we to pursue it? What are the channels by which knowledge can pass into practice? Finally, supposing the knowledge is all there, and fully accessible, how can we emerge on top of it, and use it as the raw material for creative design?

Knowledge of structure and materials, the means to building, is already extensive, and we have been aware for some time of the need to absorb it into practice and into teaching. Indeed, we sometimes over-stress the dependence of design on structure. In much contemporary work new structural forms and new materials are seized on, with an almost masochistic eagerness, as a dominating factor in design—particularly those with a strong formal character, such as the shell concrete vault, or the curtain wall. The means to building constitute a major element in design, but this is only half the story. That modern design leans so heavily on the expression of structure and material is because we know so little of the other half—the purposes of building. Today, it is often true that neither the architect, nor the people who commission a building, have a clear picture of what it has to do. The architect's contribution is thus reduced to little more than drawing a pencil line round

a list of rooms. He may leave it at that, but the result will then, most certainly, not be architecture. If he attempts to reach some formal coherence in design he will be driven, in the absence of real understanding of the needs of the building, to impose a wilful or artificial unity. Like Mies Van der Rohe, Le Corbusier and other great architects, have made their contribution by escaping, in various ways, from this dilemma. Le Corbusier designs round his own, intuitive concept of how people ought to live in cities, and he imposes this concept of living on the occupants of his Marseilles block. He is great enough and bold enough to do this but, not unnaturally, other architects have found it hard to follow him. He and other pioneers have shown us, by an

imaginative projection, where architecture is going. To get there we must understand what the purposes of present-day building really are.

Architects have not always had to face this difficulty. Often, in the past, they worked within a traditional culture, which kept pace with changes in society and the development of technique. Today, change is too rapid for tradition to keep pace. An airport, or a laboratory, must house and express a life for which there is no precedent. The design of a new school, or a new hospital, should reflect new thinking in education and medicine, not the method and habits of the past. To understand present-day needs, we must look directly at what goes on in buildings, using appropriate research methods to do so. But the conditions of normal practice do not permit an individual architect to make an intensive study of each building problem that comes his way. He needs knowledge which can be arrived at only by research, but that research must be the task of special bodies. Such bodies have lately been set up, both here and in the United States. In this country, there are today three or four full-time research teams engaged on the study of special buildings—hospitals, schools, laboratories, and farms. It is already possible to see, in outline, what the impact of this work may be on architecture.

First, it is significant that all the research now in progress has been set up, and maintained, by Ministries, research councils, foundations, and similar bodies, directly or indirectly the users of buildings. Serious organised research is expensive. The fact that responsible bodies will now finance it means that they, and the clients they represent, have found by hard experience that existing knowledge is inadequate to produce the architecture they need. They have realised that satisfactory buildings cannot be had, if the users themselves do not know what they want.

The pattern of work developed by the research teams is one of simultaneous study by a group of people, each with different training and experience. The team making a study of hospital design at the Nuffield Foundation included a historian, a sociologist, a statistician, a doctor, and a nurse, working with architects and scientists. As an example, take the hospital ward—one of the subjects studied by the team. One of our first tasks was to discover what proportion of the patients, under present-day conditions, are bedfast, and what proportion able to get up and do a certain amount for themselves. A survey, conducted by the doctor, showed that more than two-thirds of the patients are often able to move about. Indeed, it is better, from a medical point of view, if they do. This has obvious repercussions on planning, which until recently has been based on the assumption that all the patients would be in bed all of the time. Another survey, made by the doctor, established how many single rooms or cubicles will be needed for patients who are very

ill, or should be segregated for other reasons. We also looked at the organisation, and the detailed daily tasks of the ward nurses. We traced the pattern of movement of a nurse about the ward, by winding thread on pins stuck in a plan. From this we could see how design might minimise her walking—a nurse, we discovered, walks two-and-a-half miles a day, just moving to and fro within the ward. We also made a film of nursing, to see how much space was needed for particular jobs, using a cast of the fattest possible nurses, to be on the safe side. Working with physicists at the Building Research Station, we built a model of a ward to get information about daylighting, window design, and the use of colour. With their help, we also made



Interior of a clinic at the Nuffield Diagnostic Centre, Corby, Northamptonshire. The centre is one of the experimental buildings of the Nuffield research team on hospitals

records of the noise in hospitals—which is often terrific—and looked for ways, by planning and construction, to cut down the amount of noise reaching patients.

I mentioned that a historian took part in these studies. I believe that a historical approach is essential to throw light on the interaction between architecture and our patterns of life and organisation. Architecture may at one stage express a current social pattern, at another, owing to the long life of buildings, it may tend to freeze our thinking as to how we can best live and work. This point was strikingly brought out in our study of ward planning. We found in present-day hospitals a clear-cut pattern of nursing work and organisation. It would, however, have been wrong to accept this pattern as a guide to design—for historical study showed clearly that it had come into being to fit the architecture of the famous Florence Nightingale ward. It became firmly established during the century when wards were nearly all on this plan, and persisted even after they were superseded.

Experimental Building

Such studies as I have been describing each explore a different aspect of one design problem. They represent the first analytical stage in research, and each, by itself, means little. The next step is to put them together and see what they add up to—and this is an exciting experience for an architect. A problem, like ward design, for which rather dreary, stereotyped solutions used to seem inevitable, is suddenly illuminated by new knowledge, and seen as full of rich and various architectural possibilities. Some teams have gone on to explore these possibilities by designing experimental buildings, to demonstrate and test the results of research. Experimental schools have been built at Wokingham and at Coventry, and experimental hospital buildings at Greenock and in the new town of Corby. These buildings are not to be thought of as ideals, or standards; they are examples of the sort of architecture that may follow research. Like a prototype aeroplane, they enable new designs to be tested in actual use, before they are accepted into practice.

Much of the research now in progress has not yet had time to filter through into practice. I think school building is an exception. Many new schools, built since the war, are delightful examples of modern architecture, light, gay, full of colour, expressing perfectly the modern concept of teaching children. The architecture of these schools was greatly influenced by the work of research groups, and it has been striking to see how rapidly this influence has spread, and how quickly the results of research and experiment have been assimilated by architects all over the country. The most direct channel of communication is by publication. There have been the bulletins issued by the Ministry of Education, which are based on the work done by the Ministry's research team. A less direct, but extremely effective, channel has been the demonstration of research results in the form of experimental school buildings. Architects may not be great readers, but are good at learning by example. Faced with an unfamiliar problem, an architect will nearly always seek out the best recent work, go to see it, and learn an enormous amount by doing so. Demonstration in actual building is therefore the most rapid method of communication between research and practice. A slower process, but important in the long run, is the movement of men from the research teams into practice and teaching. This is only beginning, but it will in time have its effect on our thinking, and on our methods of work. Thanks to the spread of knowledge, school design is no longer a matter for a few specialist architects, but is understood by the profession as a whole. This may perhaps point to a way out from the dilemma of specialisation, which faces architecture, as it does other professions.

So long as we think in terms of each architect himself building up a private stock of knowledge, specialisation must follow inevitably from the complexity of modern building problems. If, however, we see the collection of knowledge, research, and experiment as the task of specialist bodies, then perhaps the practice of architecture need not itself become specialised. The profession which has been most successful in combining specialised knowledge with general practice is medicine. The majority of doctors are still general practitioners and it is important that this should be so, for the general practitioner alone can look at the patient as a whole human being, and take a balanced view of his health problems. Nevertheless, almost the whole body of medical knowledge is inevitably specialised, and the task of developing and extending this knowledge falls to the specialist doctors, working and researching in hospitals. The medical profession is so organised that teaching, research and specialisation go hand in hand, and doctors are

trained by specialists in the teaching hospitals, although the bulk of them will eventually become general practitioners.

In medicine, research and specialisation function in the right place—on the frontiers of knowledge. The knowledge gained in research is constantly fed back into practice, and it is significant that what is the work of a specialist today is often applied in general practice tomorrow. If architectural practice and research develop along somewhat similar lines, as I think they will, there are some important implications for its teaching. The most important is that we should recognise that architecture is a social art, dependent on contact with many arts and sciences, and not only with technology. We should train young architects to understand the great sweep of knowledge necessary for the practice of our art, and show them how to acquire and use what they need, when they need it. We should re-establish, but in a somewhat new sense, the Renaissance ideal, of the architect as *Uomo Universale*. He can no longer carry in his own brain the whole of contemporary knowledge and culture, but he can know its extent. We should therefore keep undergraduate training broad, and resist the temptation to introduce more and more courses in the vain hope of catching up, at all points, with the expanding horizon of knowledge.

Besides training all-round architects, we shall also have to meet a demand for men with more advanced and specialised training and experience. We already need such men in our growing research organisations and in teaching, and often cannot find them. For this we shall need post-graduate training, which exists in most other professions but with us is only just beginning. In architecture, as in other subjects, post-graduate work is naturally combined with research, and it is at this level that advanced, specialised study is appropriate.

I have been trying to answer some of the questions I posed earlier as to how we can pursue the knowledge we need, and transmit it into practice. The last, and most important, question still remains: given the knowledge, shall we be able to use it as a means to imaginative design? I have no doubt that we shall. Inadequate, half-baked knowledge limits the imagination, real understanding sets it free. A new and beautiful concert hall just completed at Caracas in Venezuela symbolises for me the relationship of knowledge to freedom in design. It is of simple shape, with a plain vaulted ceiling, plastered and painted white. Floating in space below the ceiling are a number of objects rather like clouds, some higher, some lower, of various shapes and colours, creating against the white background an exquisite play of form and colour.

Architectural Acoustics

A few years ago, our limited knowledge of acoustics would have made such free design impossible. To ensure good hearing in a large hall designers would have had to accept stringent limitations, affecting the overall shape of the room, the surface form of walls and ceiling and even the materials used. The architect of the hall at Caracas drew on the experience of a team of architects and physicists from Massachusetts Institute of Technology. Research at the Institute has widened the understanding of architectural acoustics to a point where any particular problem can be solved in many ways. Indeed, so wide was the freedom available, that the artist, Alexander Calder, could be called in to design the clouds, which provide acoustic control, as a piece of sculpture. Here on a foundation of knowledge, free creative design has been achieved. This is the pattern of architecture. As Barbaro, the Italian humanist, wrote in a commentary on Vitruvius:

The Artist works first in the intellect, and conceives in the mind; he then symbolises the exterior matter after the interior image, particularly in Architecture.

—Third Programme

A course of eight lectures on 'The Science of Colour Applied to Colour Television' is to be given by Professor W. D. Wright at the Imperial College of Science and Technology, London, S.W.7, beginning on Tuesday, April 26, at 4.30 p.m. Application for admission should be made to the Registrar of the Imperial College, Prince Consort Road; the fee is two guineas.

Among the articles in *The Quarterly of Film, Radio, and Television* (Vol. IX, No. 3, price 9s. 6d.) published by the University of California Press (British agents, the Cambridge University Press) is one on 'The B.B.C. Revisited' by Richard Rowland, who is a member of the English Department at Columbia University at present studying at Oxford. Other articles deal with the history of motion pictures, music for films, and television.

Paul Klee's Influence on English Art

By ANDREW FORGE

SINCE the exhibition at the National Gallery ten years ago, Klee's influence has extended over an amazing area. How much, I wonder, do the amoeba and crystal patterns of the South Bank owe to him—or the contemporary taste for the ratherweight, the spindly, and the semi-accidental? His inventive wit has been mined by the comic illustrators. Here is a drawing by André François of a toper with glass to his lips. A single line describes the level of the liquor in his glass and also describes the level of what he has already drunk: an idea which, I take it, is 'out of Klee'. At the other end of the scale many serious artists would acknowledge their debt, while, between the two, a vast number of semi-serious illustrators and decorators have cashed in on the fascination of his style.

A number of books has been published about Klee in English since the war and now there is Grohmann's substantial volume with its 473 illustrations, complete bibliography, catalogue, and 400-odd pages of text; and Werner Haftmann's concentrated study of Klee's method. Reading these two books recently, I was struck by the magnitude of the claims these two authors make for their subject. These claims seemed to throw some light upon the way in which we appreciate Klee in England. I think there are two sides to Klee's art: the one—figurative, poetic, mysterious—is parallel to dreaming; the other—abstract, mathematical and lucid—is parallel to thought. Of course the two sides interlock. That is why it is so terribly difficult to express oneself clearly about Klee; why one seems always to end by mixing metaphors.

Haftmann and Grohmann base their studies of Klee's methods upon the action and interaction of these two aspects of his art, weaving them together so that a picture is built up of an artist in whom thought and intuition are inseparable, in whom automatism and careful construction are almost indistinguishable; a painter born under a special star, nearer to the heart of nature than any other.



'Moonrise' (1925), by Paul Klee

In England appreciation of Klee has tended to take account of only one side of his art at a time. What has appealed most strongly has been Klee's poetic, often whimsical, atmosphere. His land of suns in eclipse, of distant sea ports and ornamental gardens, has common frontiers with Samuel Palmer's moonlit orchards, the Wild Wood and the land where the Jumbies live. It is primarily as a Jumbly artist that Klee has been accepted in this country.

I would like to consider the poetic dreaming side of his art first. To begin with, there is his ambiguity. As in dreams, we can rarely be sure of a simple meaning. Klee welcomed this and admitted that others would probably see all sorts of things in his pictures that he did not. Both their forms as well as their titles are cryptic. Secondly, there is their vitality. Everything is alive in his pictures and seems to be charged with

meaning, even the most abstract sign. Sometimes I am reminded of the kind of dream in which the furniture stands up and looks at me or I am chased down a lane by a grand piano. There is the picture called 'Collection of Signs' which Grohmann reproduces. It consists entirely of crosses with their arms at various angles. Each cross seems to dance or stand still, jig up and down or glide. It is impossible for the onlooker not to fall in with the pretence that each sign is alive and about to do something or have something done to it. Thirdly, there is the sense of time in his pictures: Where everything is so active, I imagine a before and an after. I think of the pictures as events rather than achievements. I think of them as being about to go on; I could hardly say this of a Juan Gris still life.

I would now like to discuss two English artists, Paul Nash and Graham Sutherland, and compare them with Klee. Take Nash first. Both Nash and Klee were devoted to certain kinds of images: 'Nostalgic Landscape', 'Northern Adventure', 'Voyages of the Moon'... they might be Klee's titles instead of Nash's. Consider the well-known 'Pillar and Moon' in the Tate, and compare it with Klee's 'Moonrise'. There is an extraordinary kinship of feeling: the serene circles of the moon, the ranges of the land beneath, and a single feature, the pillar in Nash, a square in Klee, which seems to take its light from the moon and return it in a way which makes us imagine



'Pillar and Moon' (1932-42), by Paul Nash

By courtesy of Mrs. Margaret Nash

that the two are looking at each other. Consider an earlier Nash, 'The Shore, Dymchurch', and compare it with a Klee called 'Classic Coast'. The Nash is of a breakwater, promenade, shore and sea divided into broad planes clearly lit from above. The Klee is shown in plan, as it were, and the whole geography of the scene is rendered in tiny dots of different colours. The means could hardly differ more but precisely the same note is struck by the two pictures: the same feeling of endless extent, of ages past and the immemorial meeting of land and sea. Nash's pictures are more precisely evocative than Klee's and their features are given a more specific personality. But they are less extraordinary: I think that if anyone stared long enough at a tree trunk or a fungus and pretended that it had a 'personality' of its own, he would arrive at the same sort of images as Nash. Whereas only Klee could have given life to the signs that inhabit his pictures.

A similar attitude is central to Sutherland's art, only the emphasis is different. A thorn bush will begin to stand for a head, as he has explained, or a rock will stand for a whole landscape. He will accept one thing as a visual metaphor for something else. I think that there is a connection between the fact that Nash and Sutherland were painting their romantic landscapes when they did, during the 'thirties and early 'forties, and the great general popularity of Paul Klee over the last ten years. I do not suggest any stylistic connection between Klee and the two English artists. Indeed, as regards their methods, the formation of their pictures, I do not think that there is any connection at all.

Although both Nash and Sutherland dismantle the landscape and put it together again with new associations, so that pebbles will become enormous figures, or bushes have roots like knees, their landscapes leave us with the feeling that they are scenes which have been witnessed. Not, of course, that they appear to have been done from the life, but they are at least projections. Perspective enters into it. There are always recessions and forms which occupy pictorial space. Sutherland has talked about enlarging 'the field of painting by setting our emotional paraphrases of reality . . . within the ambience of optical reality'. The images used by Nash and Sutherland find their way into their pictures by selective observation: you could say that they are the points upon which their intuitions focus: 'It means only what it says', Paul Nash wrote of 'Sunflower and Sun', 'Its design was evolved from the actual landscape under much the same atmospheric conditions. There was such a sunflower and some such effect of sunlight'. Paul Klee, on the other hand, when he tries to give an account of his method starts with the elements of the picture. There is line, tone, and colour. These three elements become the 'characters' with which he works. 'Picture-making', he once declared, 'never starts from a poetic mood or idea, but with the construction of one or more figures, with the harmonising of certain colours and tone values, or with the setting aside of certain spatial relationships'. It sounds, to the layman, a dull enough programme, far removed from the passions and intuitions of the English artists. Is this really how Klee worked? And if it is, where does the image come in? Klee is explicit:

... it depends upon the mood of the artist at the time which of the many elements are brought out of their general order . . . to be raised together to a new order and form an image . . . With the gradual growth of such an image before the eyes, an association of ideas gradually insinuates itself which may tempt one to a material interpretation . . . Acceptance of this material association may suggest additions, which, once the subject is formulated, clearly stand in essential relationship to it. If the artist is fortunate these natural forms

may fit into a slight gap in the formal composition, as though they had always belonged there.

This is an extraordinary statement: it implies that Klee did not know what his pictures were going to be of before he did them. If this is so it is clearly where he differs most fundamentally from Nash and Sutherland, for they express a personal *rapprochement* with Nature, a Nature outside themselves. Klee thought of himself as immersed in nature and considered his pictures not re-creations but creations. 'I seek a remote point or original creation', he once wrote, 'where I feel that there is no invariable formula for man, animal, plant, earth, fire, water, air, and all directive forces'. Remarks like this of Klee's have led to a great deal of pretentious nonsense being woven round him. 'What humanity asks Werner Haftmann, 'what sort of faith inspires such an utterance? For it means nothing less than that what is buried and what is still unborn can be divined in the world around us, that we can lead life in other mediums, at the bottom of the sea . . . in the air or cosmic spheres'.

Both Haftmann and Grohmann elaborate upon these ideas and make them familiar to us. But although these cosmic ambitions were obvious

important to Klee, I think it is best if his admirers take them with a grain of salt. It is not very helpful, after a while, to end up with the impression that his pictures worked like the *planchette* of a spiritualist through which, if conditions were right, he could 'receive' his images. The question is whether we can accept Klee's account of the way in which he works. I believe that in many cases we can. The movement of his lines is unfaltering that it is sometimes possible to unravel his pictures as though they were knitting, and so arrive at the starting point. You find that the pattern has a formal theme, and whatever development later, it will remain true to this theme.

Take a simple example: a water colour he did in 1925 called 'City on Two Hills' which is reproduced in Grohmann's book. The 'city' consists of a grid of rectangular compartments. We re-



'Spiral Motif' (1950), by Victor Pasmore

By courtesy of the Trustees of the Tate Gallery

the flat plane of pink at the bottom of the picture as a desert; the grey at the top, as sky. I think one can assume that the picture started with a line at the right-hand edge of the paper. (Klee worked left-handed at the time.) This single line travels horizontally to the left, then passes through a series of right angles. Then it drops, crossing over itself, and still passing through right angles, so that it slices itself into compartments. So far nothing is drawn, nothing represented. But the two longest stretches of straight line run horizontally along the bottom of the figure. This is the first 'suggestion', I think. It looks like a horizon, or a surface on which the rest of the line is standing. I think that at a certain point Klee had begun to imagine his line forming a city and from that point the structure had taken a certain direction. Not that he had devoted himself to making the original figure look more like a city but that his further drawing was the result of an intuition that to continue to elaborate the structure was to build a city. 'If the artist is fortunate, these natural forms may fit into a slight gap in the formal composition as though they had always belonged there'.

The connection between Klee and the two English artists I have mentioned is coincidental and concerned with their atmosphere alone. Now, I would like to talk about two abstract artists, Victor Pasmore and Kenneth Martin, whose work, done since the war, seems to me to be exploring the same sort of territory as Klee. How much they owe to him directly, I do not know, but their art seems to be based on the same principles. Pasmore's paintings which most obviously relate to Klee

re the spiral series which he was engaged upon about five years ago. At that time he wrote:

If a painting operates like Nature, there can be no talk of the abstract painter abandoning nature. Like nature, a painting is solid and made up of parts; the same eye looks at it that looks at nature. The same mental and emotional machinery which reacts to its appearance, reacts to the natural scene. There cannot be one law for nature and another for art.

What this means, I am sure, is that if the work evokes emotions and ideas it is not because it reflects natural objects but because it is put together in a way which is recognised as analogous to their structure and organisation. I do not know, but I suppose it is possible that Pasmore's subsequent development towards *constructions in relief* is connected with a wish to do away with all the make-believe inherent in painting and to make even purer parallels with a nature which is 'solid and made up of parts'.

Just how such analogies can be conceived has been beautifully described by Kenneth Martin in a recent account he has given of his *mobiles*:

We lie on our backs and contemplate the ceiling. In the summer, in the open, we lie and watch the leaves of a tree or the clouds. We see the reflected lights cast upwards on the leaves and passing here

and there, changing the colour. The clouds, too, reflect their light, so that the dark ominous cloud can be seen reflecting brilliance on the cumulus above. And so my black disc reflects orange onto the white above it, while this sets blue upon the next white, for my forms are two-faced, and like the leaf, are not the same on both sides.

Martin's *mobiles* do not look like mechanical trees as some by Calder do. The parallel that he suggests here comes about because in making his structure he finds himself working with the same forces and effects that bear upon natural things, with gravity, with light, and so on. This seems to me to be in the true line of descent from Paul Klee. The formal elements, line, tone, colour, which he imaginatively endows with movement, weight, measure, and so on, are here carried out into real material. Martin would not, I think, make such grandiose claims for this intimacy between his work and material nature but he would agree that he was on the same adventure as Klee.

I have tried here to show that Klee's general popularity may be owing to his powers of romantic evocation and that these appeal strongly in a country which has produced Paul Nash and Graham Sutherland and to a taste which is devoted to their work; but that there is little connection between his methods and theirs. Since the war, certain abstract artists have gained something from him which has not produced romantic or poetic results of the same kind at all.—*Third Programme*

Changes in the Water of the English Channel

By F. S. RUSSELL

THE science of the sea is young, in reality little more than 100 years; and during the first half of this period most of the effort was devoted to the description of marine animals and plants. It is only during the present century that regular observations have been made on the abundance of life in the sea and on the physical and chemical conditions of this water environment. But such investigations have now been made over a sufficiently long period to show that the picture is not the same from year to year and that remarkable changes may take place. It is well known that over the centuries great changes may occur. The Hanseatic League was partly founded on the herring fisheries of the Baltic, a fishery that has long ceased to exist on so great a scale. Evidently conditions in the Baltic must then have been very different from what they are today.

On a smaller scale a similar change has occurred in the English Channel in recent years. After the first world war a familiar sight from Plymouth Hoe during the afternoons of the winter months was a fleet of fishing craft setting out through the waters of the Sound. These were herring drifters collected from neighbouring ports and reinforced by 100 or more steam drifters from the east coast—for near Plymouth there was a herring fishery, the most important in the British Isles following on after the east coast autumn fishery. Last winter there were no such vessels to be seen, for the fishery had died by 1938 and the herring have not returned.

A detailed study of the herring populations during the period of the fishery showed that by 1932 young fish were ceasing to come into the catches. Thereafter the catches each year depended on dwindling numbers of ageing fish. It seems that in the early nineteen-thirties something must have happened in the English Channel that led to a change in the habits of the herring, which in previous years had come in their shoals to the Plymouth coastal waters to spawn in winter. Can any of these observations which have now been made over a long period of years throw light on the possible reasons for this change in the habits of the herring?

The herring is a pelagic fish and feeds on plankton. It is perhaps natural, therefore, for us first to examine the plankton records over the years. Week in week out, throughout the year, regular collections with plankton tow-nets are made from our research vessels. Examination of the catches disclosed a changing population. Each year there is a regular sequence in the appearance and disappearance of the different species as they breed and die out. This is a regular annual sequence, probably conditioned largely by temperature and similar in character to the changes which typify our seasons on land. But superimposed on this orderly seasonal change we find an irregular pattern, with the result

that some years are characterised by the presence of certain types of animal and other years by different species.

For instance, off our coasts there live two species of the glassy, transparent arrow-worm, *Sagitta*, a typical plankton animal less than an inch in length. In some years one species may predominate in the English Channel plankton, in other years the second species is characteristic. During the herring fishery one species had predominated until 1931 when it was replaced by the other. It was found that the former species was then prevalent far to the west, beyond the entrance to the English Channel. It is noteworthy that this change in the *Sagitta* population took place at about the same time as the herring fishery started to decline. It is evident also by their distribution that the two species of *Sagitta* characterise different masses of water. Could the absence of one type of water influence the migrations of herring? Is there any other evidence to support an idea that the water off Plymouth might have changed?

Among the routine observations made on the chemistry of sea-water is an estimation of the quantities of nutrient salts (phosphorus and nitrogen) in it. These salts show a seasonal change in their abundance, falling in the spring and summer when the planktonic plants use them most, and returning to a maximum in winter. An examination of the available data showed that each winter after 1930 there was only half the phosphate that there had been in the winters before. Here, indeed, was further support for the suggestion that when the herring changed its habits off Plymouth we were getting a different type of water in the English Channel. In the years before 1930 the waters were rich with nutrient salts. How can we account for such changes?

The English Channel between the Dover Straits and a line drawn from Land's End to Ushant holds at any one moment 650 cubic sea miles of water; but this water is never the same water or in the same position for any length of time. Apart from the continual swinging motion of the tides there are other changes to be reckoned with. Water is being continually added by rain and by run-off from the land. It is being removed by evaporation. But by far the biggest change is due to something else. It has been shown that if a drifting bottle is liberated in mid-Channel off Plymouth it may reach the Norwegian coast in 200 days. A movement on so rapid a scale is due to surface drift caused by the wind. A more reliable index of water circulation can be supplied by continuous measurements made by a current meter suspended from the Varne light-vessel in the Dover Straits. It has been found that there is an average residual flow of water eastwards from the Channel into the southern North Sea of about one-and-a-quarter cubic sea miles a day. On this basis a quantity of water equivalent to that needed to fill

the whole of the English Channel would pass into the North Sea in less than a year and a half. During this period the Channel will have received from rain and from run-off from the land only about 3 per cent. of its volume after allowing for evaporation. The remaining 97 per cent. can come only from the Atlantic Ocean.

It is known that in some areas the interchange of water may be much more rapid than I have suggested; in some years the water at the western end of the Channel may be washed out and replaced within a comparatively short period, much of the water escaping round the area of Land's End and the Isles of Scilly. But on biological grounds, such as the maintenance of the plankton populations, it is unlikely that the whole of the water in the Channel is in fact so regularly changed. Rather is it likely that, as in a river, while the flow in the centre may be chiefly in one direction, towards the coasts there will be large eddies from which normally the water will be dissipated away only slowly. Nevertheless, it is obvious now that the origins of major changes in the Channel water must be sought in the Atlantic.

But let us first consider what happens to the phosphorus in shallow waters. During the spring and summer months most of the phosphate is utilised by planktonic plants. During the summer the upper layers of water warm up, and a discontinuity layer is formed at a depth of about fifteen metres where there is a rapid change of temperature from that of the upper warm water to that of the deeper cold layers. The phosphorus in the plant crop passes into animals whose excreta and dead bodies carry it into the deeper layers and to the bottom. Because of the discontinuity layer the deeper water cannot mix with the surface water, and the latter becomes nearly denuded of phosphate. The phosphorus comes back into the upper water only during winter, when the cooling of the surface allows mixing once more, as the temperature of the whole water column becomes the same. A similar loss of phosphorus to the deeper water goes on in the open ocean. But in the ocean there is a more permanent discontinuity layer at a depth to which light cannot penetrate sufficiently to allow active photosynthesis. So in the ocean the surface layers are usually poor in nutrient salts. It is evident, then, that the fertility of the English Channel might be much less if its water were drawn from the surface of the Atlantic rather than from its deeper layers. The discovery of the mechanism whereby the deeper water becomes available is a major problem.

Circulation in the North Atlantic

The circulation of water in the ocean is a complicated matter in which many different factors play their parts. The prime mover is probably the wind, but once the circulation is started other factors enter into the picture, such as the effects of the earth's rotation, changes in density of the water due to temperature, and salinity differences caused by precipitation and evaporation, and by cooling and heating, the configuration of the continents, and so on. The general pattern of circulation in the North Atlantic is well known. The trade winds drive water near the equator westwards and pile it up in the Caribbean Sea, whence it issues through the Straits of Florida as a mighty river of warm water, the Gulf Stream. As this travels north it fans out in a north-easterly direction and the water is driven by winds (as the North Atlantic surface drift) to bring its beneficent climate to bear upon our shores. Water thus taken away is replaced by cold water of Arctic origin moving south along the Labrador coast. The warm, salty water also, as it moves north, cools and becomes heavier than the underlying, less salty water through which it sinks to travel south again in deeper layers.

The Atlantic also receives a quantity of water from the Mediterranean. Water from the Atlantic flows into the Mediterranean at the surface through the Straits of Gibraltar and there is a compensating flow of heavier and more saline Mediterranean water out into the Atlantic which pours over the Gibraltar sill at the bottom. This water, mixing with the Atlantic water, moves northwards at considerable depths and can be traced even to our latitudes. Indeed, if a vertical section be taken of the ocean water lying off the Continental Shelf to the west of the English Channel it will be found to give a complicated picture of a number of water masses with differing characteristics and having different origins.

During the last thirty years there has been a noticeable climatic change. Measurable changes in the conditions in the Arctic Sea have been recorded. Nansen, in his drift across the Polar Sea in his stout ship *Fram* in 1893-96, found that the cold surface layer with temperature of -1.0 to -1.9°C was 200-250 metres thick, and

below it there was warmer Atlantic water with a temperature $+1.2^{\circ}\text{C}$. Russian expeditions between 1927 and 1935 recorded that this cold surface layer was then only 70-125 metres in thickness, and that below it the Atlantic water had a temperature of 0.6° to 2.6°C . These changes in the far north have led to a considerable northern extension in the distribution of certain fish, such as the cod and herring, and of other marine organisms.

At the same time, on land the glaciers have receded. In Iceland for instance, their reduction in size by melting has been so great that land has been uncovered which had not been cultivated for 500 years. In Norway feathered arrows have been revealed on snow patches where it is thought that they may have lain covered by snow for 1,400 years or more.

The changes in the distribution of water masses in the sea are on so vast a scale that they must influence the situation off the mouth of the English Channel, and therefore in the Channel itself. I have touched upon them to emphasise the fact that in order to understand what is happening near home we must carry our investigations far afield and obtain the larger picture.

Mackerel and Herring

In the relatively short time since the first world war other changes have been seen in the waters of the English Channel. Some of these are periodic and repeated each year, such as the feeding migration of the mackerel. Others are more irregular, such as the disappearance of the herring, and, it should be added, the great abundance of the pilchard which has even penetrated into the North Sea. We think that because the change in the habits of the herring coincided with the alterations in phosphate and plankton content off our shores, the must in some way be connected. The suggestion is that the herring avoids a certain type of water, or perhaps prefers another. Such a comparatively sudden change might possibly be accounted for by an unusual redistribution of water masses in the far north in one year, but there is this other factor of the rise in northern temperatures. This warming up, although in places barely noticeable, must lead to alteration in the boundaries of the distribution of many marine animals. The English Channel, it must be noted, is about the southern boundary of the distribution of the herring, and the northern boundary for that of the pilchard.

Thus the pattern of the tapestry is complicated and confusing. It becomes difficult to identify the connecting links and to decipher cause and effect. But to me this confusion holds great promise. In the history of all scientific discoveries we pass through a regular cycle. At first, with only few observations available, the picture seems simple and easy to understand, and a theory is put forward. In order to test the simple theory more observations are made. Things become for a time more and more confusing as facts appear which do not fit the theory. Then, suddenly, when sufficient evidence is available, a new picture crystallises, and discerning eyes see it standing up in bold relief, and knowledge has advanced another step.

I feel certain that the confused state of our knowledge concerning the causes of changes in the English Channel will soon be coming to an end as observations in the ocean become greatly increased. We shall then have a much clearer idea of the truth than we have ever had before. But it will be for those working on the problem now to tell the final tale.—*Third Programme*

The Worm

And so the world's disasters come,
Unheralded by script and drum,
Not with deliberate parade
Of bombards on the esplanade
Or thunderbolts upon the tiles
We see the adversary's wiles,
But a slow weeping in the stone
And wake to find the castle gone;
Not with murder rape and fire
But a small flaw in the desire,
A little hollow in the heart
That swells to tear the breast apart.
This petty worm that we have found
Will tip this forest to the ground.

HILARY CORKE

Automatic Control and the Future

The last of three talks by R. H. MACMILLAN

IN my first talk* we found that the use of automatic control today is only a continuation of a process that has been going on for centuries; but it has become much more rapid in the last few decades. Automatic regulators are found in almost every phase of

modern life, from the thermostat on an oven to the automatic pilot in an aircraft; they control anything from the voltage of the electricity supply to the movements of guns and searchlights; in industry, the question of whether we yet have 'automatic' factories is largely a matter of definition; and it is certain that much modern chemical plant could not be operated at all without its automatic controls. I want here to discuss the influence that this tide of 'automation', to use an Americanism, is having on our industrial life, and the developments we may expect in the near future.

Last week†, when I was describing the behaviour of control systems, I showed that some of their most characteristic properties are accounted for by their having negative feedback. When a feedback system has time lags or multiple loops, we found that a change in its sensitivity alone may be sufficient to cause oscillation. It has long been observed that processes in fields other than that of automatic control exhibit this typical oscillatory, or cyclic, behaviour; and the suggestion that the concept of feedback could provide a unifying basis for work in many branches of science originated with Newton's contemporary, Leibniz. To denote its effect on political science the Frenchman Ampère coined for it, a century later, the name 'cybernetique', derived from the Greek word for helmsman, to which we also owe our own word 'governor'. Much

more recently, the feedback concept has been popularised, as 'cybernetics', by Norbert Wiener, who has himself contributed to the mathematical theory. As there is hardly a phase of natural science that does not owe something to feedback, I can do no more here than mention a few examples to illustrate its widespread influence.

Many physiological processes depend upon the existence of feedback. The heart beats at its natural frequency for much the same reason as a clock does; we can stand upright on account of the feedback processes that are developed in childhood in our muscular system. The state of tension in our muscles is continually being measured by sense organs embedded within them, and impulses from these organs are used to maintain this state unchanged until overriding signals are received from the brain. It is particularly interesting that some of our sense organs are so constructed that the impulses they emit can actually anticipate the stimulus to some extent, and so greatly improve the quality of control. Disease or intoxication, on the other hand, may increase the sensitivity or time lags of these natural controls and so interfere with their proper functioning.

The study of the interaction of living things with their environment has also been assisted by feedback theory. When two animal populations exist side by side, with one preying upon the other, a rhythmic fluctuation in their numbers would be predicted under certain conditions, for this is the same situation as arises in a multiple loop control system. Just such a fluctuation in the numbers of rabbits and lynxes in Canada

is well known as the 'fur cycle'. What happens is roughly this: as the number of lynxes goes up they eat more rabbits, which accordingly decline in number, until a stage is reached at which there are so few rabbits left that the lynxes begin to die of starvation and so decrease in number; the rabbits thereupon multiply until they provide enough food for the lynxes to multiply again in their turn. And so the cycle is repeated indefinitely, if there is no external disturbance.

Something similar has been observed with two species of fish where it has also been found that the cyclic variation in number is inhibited by intensive fishery, just as would be predicted by theory. Such situations were analysed a quarter of a century ago by the French mathematician Volterra in his book *La lutte pour la vie*; but more recently Rashevsky, working in Chicago, has greatly extended this work, and has examined the sociological implications in his book *The Mathematical Theory of Human Relations*. This study of group behaviour, as it is often called, is an extremely complex and fascinating branch of sociology.

Some psychologists, too, are looking to control theory, to help them in their study of the functioning of the human brain. It seems possible that for many purposes the brain operates by continually assessing the probable results of action (perhaps ten times a second) and then making appropriate adjustments. Such behaviour would imply that the brain has a huge capacity for storing information—call it memory, if you like—and also the ability to do simple computations—which you may prefer to call prediction. I believe that the

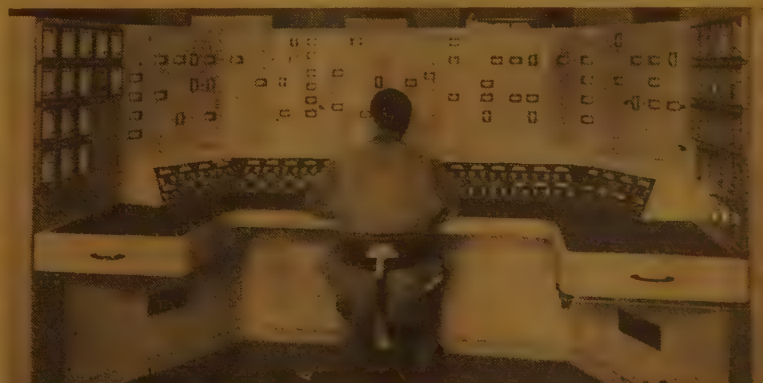
neural mechanism needed to accomplish both these tasks does indeed exist in the brain.

But it is, perhaps, in economic theory that the concepts of control



Part of a petroleum refinery seen by night, showing, through the window in the foreground, the automatic instruments in the control room for the catalytic cracking unit (behind)

By courtesy of 'Scientific American'



A stage further: in some modern chemical plants a control desk replaces the control room. The operator makes adjustments to the settings on the various automatic controllers after studying the state of the plant on the graphic panel in front of him. In the next stage of development the operator will be replaced by an electronic computer

By courtesy of Messrs. Evershed and Vignoles, Ltd.

can make—and, to some extent, are making—their greatest contribution. It is well known, for example, that the price of pigs tends to fluctuate regularly, completing one cycle in a period of about four years; and it seems reasonable to expect that the so-called business or trade cycles, of which this is typical, may be accounted for in much the same way as the fur cycle, though the problem is much more complicated.

Lord Keynes proposed a model of an industrial economy, which consisted in the main, he suggested, of two closed loops having as a common quantity the general level of economic activity, which is closely related to the standard of living. These two loops are the capital goods loop and the consumer goods loop; it can be shown that, with such a system, a small decrease in the flow round one loop could be exaggerated by the other into a much greater drop in economic activity. When you remember that many of the dependencies in these loops are not linear, you will appreciate that the analysis of even this simple model of an economic system presents formidable theoretical problems. The chief importance of this, and later more elaborate, models seems to me to lie in the constant reminder they afford us, that the economic system is both non-linear and multiple-loop. I emphasised in my last talk what unexpected behaviour such systems can exhibit, and it is wise to bear in mind that so little a thing as fixing the price of one commodity is capable of setting in motion a chain of events that could throw the whole economy into a state of instability.

Economic Effects

As a particular instance of a radical disturbance of the industrial scene, I want to discuss, in a general way, what may be the economic effects of the present influx of automatic machinery and controls. An obvious starting-point for such a discussion is to consider why a man may be replaced by a machine. What are its main advantages? These seem to me to fall into two groups: the machine may be doing a job that a man could not do at all, or it may do a job that a man could perform, but he would do it less effectively. In the first category we might include the mechanisms that assist a man's limited strength, as in devices as ships' steering. Automatic controls are also indispensable where it would be dangerous for a man to go; an example is into the harmful radiation near an atomic pile. Another use for automatic control is where there would be no space for a man, as in many rocket missiles, whose existence would be inconceivable without their automatic guidance and control mechanisms.

Automatic devices may be used, too, because they can act far more quickly than any man could: this makes them necessary for safety devices of all sorts, and for the control of rapid chemical reactions. These process controllers, as they are called, also perform a certain amount of computation. The capacity to compute rapidly and accurately is essential to the control of a highly unstable craft, such as the 'Flying Bedstead'; and it is only the automatic devices through which it is controlled that enable this strange vehicle to take the air at all.

A machine may control more effectively than a man because of its superior efficiency, precision, economy, or reliability. The aircraft automatic pilot, for instance, replaces a man because it is more efficient: it does not suffer from fatigue, and it gives the passengers a smoother ride than the human pilot can. Because of their ability to control accurately and to within close limits, automatic controls may improve the efficiency of industrial plant. For instance, owing to the more uniform flow in a chemical plant under automatic control, it is possible to operate with less storage capacity; this in turn reduces the time lags and increases the speed of operation of the plant. It is true to say, in fact, that even if armies of labour were available, no modern oil refinery could be operated manually at anywhere near its present capacity.

The automatic devices that displace men because they do the same job more cheaply are becoming of increasing importance as the cost of labour rises. A typical example here is the automatic traffic light, which replaces the policeman on point duty, who is released for more useful and less tedious work. The many thousands of automatically controlled crossings in this country effect an annual saving of several million pounds. Simple automatic devices can be made extraordinarily reliable, especially if duplication and various counterchecks on their operation are used; this makes them ideal for such functions as automatic signalling and train control, where they can eliminate errors that may arise from the 'human element'.

In view of the many advantages arising from the use of automatic devices, it is not surprising that in recent years production has increased out of proportion to capital outlay, while there has been a great

reduction in working hours, together with the elimination of many monotonous and laborious manual tasks. But, in spite of this, it has been suggested that, even on new plant being erected, an increase of no less than tenfold in the expenditure on automatic control would be possible, using only standard equipment now available. This estimate is based on the conjecture that, taken over industry as a whole, about 5 per cent. of the capital cost would be devoted to the instrumentation in plant fully equipped with current automatic devices. Whereas, in fact, only about $\frac{1}{2}$ per cent. of our present total industrial capital expenditure is accounted for in this way.

Why, then, are not even more automatic devices in use today? There seem to be several reasons, the most important of them being expense, inflexibility of function, labour trouble, and problems of management. Let me take each in turn.

One difficulty is that the first cost of automatic equipment is itself bound to be heavy: it rises steeply with complication; a machine that is expected to be versatile in function will be more expensive than special purpose equipment. Here lies the greatest advantage that a man still has over any automatic control yet devised: his astonishing adaptability. The manufacturer is on the horns of a dilemma: he must use automatic equipment, because he cannot otherwise produce as cheaply as his competitor, who has it; on the other hand, if his competitor should bring out an improved product, which is stealing the market, he may, on account of his automatic machinery, find himself involved in a severe loss; for workers can be transferred, but overhead on inactive machinery cannot. To run such a factory economically moreover, it is essential to operate the machinery continuously; this means that production increases can be obtained only by adding to plant. All these arguments lead to the conclusion that replacing men by machines must increase the tension of the economic system: that is, it increases the sensitivity of some of the closed loops in the economy, and I have already remarked that this is just the sort of situation that is likely to lead to instability.

The third drawback to the use of automatic equipment is the antagonism brought about by the labour shifts involved. Several skilled workmen may be displaced by the introduction of automatic machines which can be operated by a single unskilled man. But we must remember that these machines demanded skilled design, and still require skilled attention to maintain them in good working order. The situation is clearly complicated, so let us look at this labour problem in a different way. If capital investment were to increase while the need for manpower dropped, the consequent rise in capital's share of the national income would cause widespread unemployment and have an adverse effect on the standard of living. But the capital needed for unit output has not, in fact, increased for the last forty years, and we may even expect the use of automatic controls to reduce it; it follows that labour should retain at least its present share of the national income, while working much shorter hours to earn it.

New Training Methods

We have seen the management problems that may be introduced by the inflexibility of automatic installations. One way of helping industrialists to meet such difficulties is the introduction of novel methods of training for future executives. There is appearing, in addition, a new type of technologist—the control engineer—and special courses of instruction must be provided for the large number of such men that will be needed. This is a real challenge to our engineering schools and universities, as the training must cut across many separately established disciplines, a tendency that is to be welcomed as it will involve a reaction against the current trend towards ever greater specialisation.

Cost and problems of labour and management seem unlikely to prevent a vast extension in the use of automatic control, even though they may retard the process. What form, we may ask, will this extension probably take in the immediate future? Clearly, developments already on the drawing board will be brought to fruition. We shall have automatic dialling of trunk and international telephone calls: the manual exchange will become completely obsolete. We shall have automatically controlled trains: already a driverless monorail train, running at speed up to nearly 200 miles an hour, is being tested in Germany.

Another development that will certainly come is one in which I fear that we in this country are lagging behind the Americans, who already have several pilot schemes at work. I refer to machines that take their instructions from punched cards or tape, instead of requiring a human operator. The tape can contain full instructions as to the actions to be taken by all parts of the machine, and so cause it to perform just a

a human operator were in control. Negative feedback is introduced to ensure that the instructions are being followed accurately and to make any small corrections that may be needed. One way of producing the tape is the 'play back' system. A skilled operator makes the first trace on a special machine that records his actions; exactly the same series of movements can then be repeated much more rapidly, as there is no need to pause for thought.

Since many recent developments in chemical manufacture are continuous processes, they lend themselves very conveniently to fully automatic control. For this reason many oil refineries, for example, have almost reached the 'push-button' stage. Not content with this, however, a further step is now contemplated, in order to get the greatest possible yield of the required chemicals. To do this, the temperatures and pressures at which the various parts of the plant are automatically adjusted must be adjusted continually, as the chemical composition of the crude oil supply varies (which it does, even when it comes from the same oilfield).

This adjustment demands what is called 'end-point control'. The final product is analysed and the controllers are adjusted accordingly. To do this automatically, one will need continuously operating analytical equipment and also an elaborate computer, capable of accepting information from the analyser and, in the light of this, feeding out the right corrective impulses to the various controllers. Continuous analysis of the composition or physical properties of a liquid or gas is difficult, but the computer will be an even tougher proposition. The problem is that information should be built into it. It seems likely that the solution will be for it to work on a 'trial-and-error' basis; making trial adjustments and then storing information about their results. The computer could, alternatively, work along the same lines as I said the human brain may operate, by rapidly assessing the results of each possible course of action before venturing upon it. It will be necessary for the computer to be able to detect and rectify its own faults, or at least to give warning of them, and take any precautionary steps immediately needed.

With end-point control it will be possible to operate high-speed chemical reactions, which could not possibly be controlled by hand. The time will come when the computer is as necessary to the operation

of chemical plant as a conventional controller is now. Computers may also enable us to improve the performance of automatic controls, when they are applied to a development we are now investigating at Cambridge. This is the use of what may be called 'secondary feedback', the 'primary feedback' being the monitoring signal that closes the control system loop. But one can also measure some other quantity, such as the average value of error, to be used as a criterion of performance. This 'secondary' measurement is then fed back, and made to effect an automatic adjustment of the sensitivity, or some other factor, so as to get the best possible performance. Because both computers and tape controlled machines can be very versatile, they may provide the answer we need to the inflexibility of much current automatic equipment, and this is perhaps an encouraging note on which to wind up my discussion.

By way of summary, may I remind you that my arguments in these talks lead us to conclude that three widely held views appear to be in error. The first is that automatic devices can be made to do anything: we have seen that, even if economic considerations are disregarded, theory indicates that there are definite limitations to what can be achieved. The second misconception is that the further use of automatic devices can make no radical difference to the economy, since it is only the extension of an existing process; with a complex feedback system such as this, however, no such conclusion can be drawn. Thirdly, it has been held by Karl Marx and his followers, that what he called 'technological unemployment' is an inevitable consequence of such advances as the introduction of automatic control. On the other hand, John Stuart Mill reached the conclusion that while such progress may benefit labour—and usually, in fact, does—this is not necessarily always the case. I have tried to point out why this is still the only position that can reasonably be maintained.

It might even be claimed that, just as the first industrial revolution was caused by the machines that replaced man's muscles, so may automatic controls, which replace his brains, be bringing about what Norbert Wiener has called the second industrial revolution. Moreover, in wider fields of knowledge, what the feedback theory of Leibniz is doing to elucidate observed cyclic phenomena, may be compared with what Newton's Law of Gravitation did for Kepler's observations on the planetary motions.—*Third Programme*

A South African Rebel

OLIVE RENIER on Olive Schreiner

OLIVE SCHREINER came to my home a number of times when she was over fifty and I was under five. I know I ought to be able to record some kind of personal message from the great pioneer to the young beneficiary, or at the least an exhortation to be good. But it is not so. I have no message. Indeed, I remember only two such meetings. Both are, as I now know, typical of Olive Schreiner's sad last years. I remember being taken to a tall, gloomy mansion somewhere in Kensington. There, in a large room dim with plush curtains and brown with leather armchairs, I am introduced to a small square lady with fierce eyes. This is Aunt Olive. She is my godmother, and I am vaguely aware that I do not deserve it. I sit on her knee, and there is a disappointing failure in communication.

The second memory is of some war-time winter breakfast. Electric lights wage an ineffectual battle with a yellow fog. My mother by adoption and Olive Schreiner are engaged in one of many arguments about the war. For Aunt Olive holds strong pacifist views. My mother, reluctantly, supports the war. Since both ladies are made miserable by the slaughter, and since they are very fond of one another, they become exceedingly angry. This, and the fog, brings on Aunt Olive's asthma. She thumps the table and coughs and orates. I huddle appalled into my chair. I have no views on the war but I hate anger.

This was Olive Schreiner at the end of her life, lonely in war-time London, harried by patriotic landladies who thought she was a German, gasping for the dry air of her beloved South African uplands. A few years later she died in Cape Town at the age of sixty-five. For me, when I was told, an old, old woman had died. But for my mother, and for the host of Olive Schreiner's friends, it meant the end of a great turbulent force in their lives. Who and what was she, this woman whom

they so passionately loved? I do not think we can ever truly answer that question, about people who are dead, but at least we can look for the traces. It seems sensible to begin where most of her friendships began, in London, in the eighteen-eighties.

Olive Schreiner came to London for the first time in 1881. She was then twenty-six. In her luggage was the revised manuscript of *The Story of an African Farm*. She did not immediately find a publisher for it. Four years later she recalled how she had, walked up Regent Street in the rain, thinking that everyone would know that the parcel under her cloak was a rejected manuscript. But in due course, Chapman and Hall came to the rescue, and it soon became known that the somewhat stagey pseudonym of Ralph Iron concealed the identity of a young South African woman in whom charm and vitality seemed allied to genius. Here was a genuine New Woman, who in the middle of her South African desert had somehow asked herself the same questions, about religion, about women, about sex, that were being asked in and around the British Museum. She soon had a crowd of exciting friends, among them Havelock Ellis, Edward Carpenter, Eleanor Marx, Arthur Symonds, Karl Pearson, W. T. Stead. She joined a society called the Fellowship of the New Life, some of whose members returned to earth and founded the Fabian Society. She listened to Beethoven's Choral Symphony among the statues at the Crystal Palace. She rode on the tops of buses, and heard the conductor call Shoreditch, and there they were, the bells of Shoreditch, just as in the nursery rhyme. She even lunched with Mr. Gladstone, whom she called a cute old devil.

I am moved whenever I think of those young idealists in search of wisdom. They were all hard up, but money did not matter, so perhaps that is not worth mentioning. They met at the British Museum, smiled

shyly at one another over piles of books as they studied physiology, German, ethics, and the history of prostitution. They adjourned, exhausted, to teashops, and thence to each other's lodgings. For a young, single woman to live alone in London was already suspect. To receive a succession of young men in one's room was to lay oneself open to a charge of blatant immorality. Olive Schreiner was beset by indignant landladies. She could never accept, as most of us learn to accept, that people will always assume the worst.

Olive Schreiner and her friends were revolutionaries, but revolutionaries who did not bother much with economics and not at all with political parties. Like an earlier sage, James Hinton, whose work they studied, they thought the true law maker must be first a law breaker. They often called themselves socialists, but were unable to accept any kind of state socialism. They believed that change must arise first in the human heart. 'Does it strike you', asks Olive Schreiner, in a letter to Havelock Ellis, 'how within the sixteen miles that make London lie all the materials for heaven on earth, if only something could come suddenly and touch our hearts one night'.

Belief in the Goodness of Human Nature

The basis of this idealism was a profound belief in the essential goodness of human nature. This being so, how was it, Olive Schreiner and her friends asked, that men could exploit their fellows, that women could accept their position as the parasites of society? Such questions led Havelock Ellis to his pioneer studies of psychology. They led Olive Schreiner to explore social relationships between men and women, between groups, and between one race and another. She wrote and re-wrote this theme in its various aspects throughout her life. And the root of the matter was, as it must be in the case of all creative artists, her consciousness of the painful development of her own personality in its conflict with society.

For the stocky young woman with the eloquent, dark eyes and the passionate features of a romantic heroine, who looked for the light in dirty London, had had a remarkable childhood. Her father was a German missionary, her mother was English, and there was a troop of energetic and intelligent elder brothers and sisters. For them all the Bible was still the chief guide and mainstay. There was nothing incongruous about this. They led biblical lives. As the ox-cart creaked across the enormous landscape between one mission station and the next, they could reflect that Joseph and Mary on the flight into Egypt travelled no faster than they. But soon the brothers were picking diamonds at Kimberley, and there in the big hole sat Cecil Rhodes weaving his dreams and his deals. Their end would not be as their beginning.

But outward events mattered less than what was happening inside the child. Nobody who has read *The Story of an African Farm* can doubt that the account of the boy Waldo is a portrait of the artist. There are two realities in the child's life, as he opens his eyes wide in the sunlight, the world of nature and God's world. Nature he can manage. At first he makes stories out of it, and later he dissects it. But God? It is not only that the child, having discovered the Sermon on the Mount, finds that its precepts are not practised by those he loves. It is not only that he finds no answer to the question, 'Is it good of God to make hell?' It is that he wakes up one day and God has simply gone away and left him. The child then says: 'There is no justice. The ox dies in the yoke beneath its master's whip. The black man is shot like a dog, and it goes well with the shooter'. And it is only after a long time that the child finds comfort in that other reality of his world, nature, and constructs for himself the unity he needs.

Life has some kind of unity, though we cannot altogether comprehend it, and the human soul needs and seeks for it. This was the lesson Olive Schreiner's childhood in a primitive and dangerous land taught her. But the seeker after truth must pay a price. 'All things on earth have their price', she says, 'and for truth we pay the dearest. We barter it for love and sympathy'. In other words, if you refuse to go to church because you do not believe in God your family can take a humiliating revenge. Not only were there few people to understand this rebel, but there were few books available to reinforce her theories and feed her young mind. A moving chapter in *The Story of an African Farm* tells of Waldo's stranger who gives him a small, brown volume. Waldo's stranger had had his counterpart in reality, and by the time Olive began her adult life as governess to the children of Boer farmers, Spencer's *First Principles*, which was the small, brown volume, Emerson's *Essays*, and *The Origin of Species* were giving form and substance to the ideas which she had squeezed out of the African rocks.

The rebel fought other battles. In later years she wrote to a friend:

When I was a child, and a young girl in my teens, the thing that absorbed my thoughts and feelings was the position of women. A terrible, burning bitterness was in my heart about it.

Of course she did not like wearing stays, and wanted to go to college. But there may have been other rebellions. We do not know. There are matters on which the biographies are discreetly silent. At any rate all three of her novels contain girls betrayed and wives wronged. We do not find them entirely credible as characters, perhaps because Olive Schreiner never really learned the craft of fiction. The child Lynne in *The South African Farm*, the children Rebekah and Bertie in *From Man to Man*, that much loved and never finished novel, are real people. Once adult, however, they illustrate a thesis rather than adorn a tale. Particularly poor Bertie, who, having fallen, is driven remorselessly towards prostitution and the grave by her creator, *via* a vastly wealthy and quite unbelievable Jew.

The truth is that what Olive Schreiner felt about women is all mixed up with what she felt about herself. She was a passionate woman, and also a romantic artist, powerful and solitary. She needed to love and also not to be tied to anyone. For men compromises were possible; for women it meant shipwreck. So the battle of the dual standards of virtue for women, discretion for men, took place inside her. The spark flew. Harlots, she said, are really the guardians of home life. The stand between men and the candid consideration of what monogamy means. Let us make honest women of them, or honest men of ourselves.

Africa made the rebel and sent her forth. To Africa she returned. She was a sick woman when she came to London. The English climate finally wrecked a constitution which had apparently already been undermined by privations in youth. Sometimes one wonders, reading this fragmentary selection of her letters which her husband published, whether she did not put her finger on the truth when she wrote, 'Oh, it isn't my chest, it isn't my legs, it is I myself—my life'. Be that as it may, Olive Schreiner searched for health as she searched for truth. Now here, now there, sometimes with hope, more often in despair.

It is tragic that this suffering woman who returned home to find peace in her beloved Karoo, was swept up in the scramble for Africa. Though for a moment she thought of Rhodes as South Africa's only genius, she was soon disillusioned. Well meaning friends who brought them together as twin lions at a party, saw her thumping the table and denouncing Rhodes and all his works. Of course she took up the cudgels for all the oppressed at once. Right up to the outbreak of the Boer War she tried to make the English understand the point of view of the Boer farmers. She realised that the problem of colour was bound up with economics. If only, she says in an article written in the 'nineties, if only there were not such vast resources of black labour the capitalists could not exploit the workers so mercilessly. Why the workers could have formed trade unions and gone on strike. Native workers did not dare do this, for if they did the cry would go up 'Blacks combining!' and they would be pitilessly crushed.

Awakening to Love of Africa

The Boer War was a cruel blow, for to her it was a war of brother with brother. It may have been during this time of division that she considered the diversity of Africa, and realised that it was because of that diversity that she loved her country. From *Thoughts on South Africa*, a collection of articles and essays, I take these words which are still valid today. She asks if it is impossible for the South African peoples to attain to any form of unity, organisation, and national life. And she replies:

There is a subtle but a very real bond, which unites all South Africans, and differentiates us from all other peoples in the world. This bond is our mixture of races itself.

How could she reach any other conclusion in the matter of Africa? She had seen the unity in the diversity of natural things. She had recognised as her sisters the prostitute in the London street, and the Bantu woman bearing her child by the roadside. Though sometimes she found that the world was a striving and a striving and an ending in nothing, yet she knew that it was not always so. Men could not forever build walls to shut each other out. Such idealism, they say, is unfashionable these days. That is nonsense, of course. It is not subject to fashion. Olive Schreiner's hunter after the beautiful bird Truth never climbed to the top of the mountain. But as he lay dying one single feather did fall into his hand. And so it always is.

—Third Programme

You and Your Neighbour

The Unknown Millions

The third of four talks by Canon V. A. DEMANT

WHEN a man becomes a Christian he not only acquires a new set of beliefs, he finds himself in a new stream of existence and he lives in a new society. This is the Church, or, as Christians call it, the Body of Christ. This new society began when Jesus Christ came, as He said, to bring the Kingdom of God. It has its base in the eternal world and an outpost on earth; and it is this outpost which brings about a new history alongside of the old history. That is why, from the beginning of Christianity, there has always been something of a problem about the relations of the Church and the world. These two histories were never quite sundered apart and never quite merged in one another.

Life with a New Dimension

You may well ask what all this has to do with me and my neighbour, and how to love the unknown millions of neighbours we never meet. Here is the connection. A man who has found himself in the sphere of the love and grace of God and is growing the Christian disposition towards his neighbour which I discussed last week—this man, who becomes part of the new history, is not cut off from the old history. This old history still goes on and the Christian has responsibilities in it. It is the history of human societies, states, and civilisations. The Christian does not come out of these when he enters the Church; what happens is that he adds to the membership of his earthly societies another membership which gives his life a new dimension. It is something like the deaf man to whom Christ said 'Ephphatha' and restored his hearing; he did not lose his world of touch and sight and taste, but that same world had now a new depth, another dimension—the world of sound.

In the same sort of way a Christian member of the redeemed society is still part of nature and of earthly communities, the communities of family, work, states, and nations; but he now participates in these communities with resources derived from elsewhere; for he belongs in addition to another cycle or level of existence. We express our membership of this other history by the drama of Creation, the Fall, Resurrection, and Eternal Life. The Epistle to the Hebrews speaks of Christians as those who 'have tasted of the powers of the world to come', that is to say the eternal world behind the scenes. With those powers the Christian can know the better what sort of society on earth is for the good of man, and he wants it for the millions to whom he is joined without knowing them personally. Every man belongs to a period, a group, a class or a nation, a world movement or something else which links him to a nameless multitude. The Christian man, having found his true identity in God and his brother in those he meets, can then with a sanctified imagination think of all unknown men as neighbours. I say 'with sanctified imagination' because we cannot easily read statistics with compassion, with the direct moving experience that comes of personal knowledge. But when we see men classified in numbers—so many engaged in heavy industry, or so many victims of flood, or so many political opponents behind the iron curtain, or a few hundreds in front of us in the fuel queue, it is possible for one who has grown the Christian disposition to sense a little of the individual situation of each one in those impersonal lists. He will know enough of his own and his personal neighbour's problems to be aware of the common humanity concealed behind these masses of figures.

Justice, Queen of Virtues

How would we, then, apply on behalf of these unknown millions, the Christian disposition we may have learned to adopt towards the neighbours we are in contact with? Here we are up against a difficulty; for organised society has to work by bonds and regulations which are impersonal. Therefore, in place of unique care for this or that one, society has to use a more general principle of care for multitudes of people. That principle is justice. Compared with love, justice seems cold and abstract. Yet Aristotle regarded it as the queen of virtues, and in the Bible the word for justice is the same as for righteousness. Let us

take that biblical equation of justice with righteousness, along with the widely accepted definition of justice as rendering to every man his due, and see how it works out in the Christian mind.

First of all, in the Bible God's love for His creatures is part of His righteousness. We could almost say it is the same, but we might then overlook that God's loving righteousness is not misled, as our good nature often is, with regard to the true good of the neighbour. Then, secondly, the Christian disposition knows that what is due to my neighbour is much more than he deserves, apart from the fact that our human nature finds it hard to be fair unless it is prepared to be more than just fair—we have to be generous. For these two reasons the Christian mind sees justice as an aspect of love, though justice does not give us the emotional reward that we get out of love—just as paying one's tradesman's bills seems rather drab compared with famine relief. But a Christian will be finding his love for the neighbour the most genuine when it has none of the noble feeling of being kind. Perhaps Oscar Wilde had something of this in mind when he wanted a better social order so that he would be delivered from what he called the 'sordid necessity of living for others'.

Man's Dignity and Man's Frailty

If I have convinced you at all that in relation to the unknown millions of our neighbours love must take the form of wanting justice for them, what does it involve? Let us try to answer that question in terms of the two facts about the nature of man we considered in my previous talk. Christianity knows that man has a certain nature, or structure, or essence—whatever you like to call it—and this merits a proper kind of respect. He is not only made in God's image; his very being is a relation to God. In the second place, Christianity knows man's frailty, his limitations and sin. I would say, therefore, when the Christian mind enquires how much justice there is in a particular social order—or how little—it will ask how far its institutions and outlook recognise these two things: the value and dignity of man and also his limitations and frailty.

For example, if we take as a criterion the nature of man then we judge a social order by the extent to which it recognises his value and dignity, by how far it allows him personal goals, and does not subordinate him entirely to the requirements of some organisation such as the state, the commercial system—and—shall we not soon have to add?—the psychological laboratory. Because each one is a child of God he is not merely a cog in the machinery of an earthly enterprise. We have been tragically familiar, in our generation, with one deliberate violation of this rule, namely in the tyrannies of political totalitarianism where the human being is regarded and treated primarily as a convenience or a nuisance to the overpowering demands of social solidarity. But I think there is also a less deliberate form of treating men as means, which is dangerously concealed under the umbrella of freedom. I am referring to the whole outlook and practice of our technical commercialism, where we are being conditioned into a way of thinking of men as dumps for products, in order to keep businesses, and governments, and inventions going. Think of the endless stimulation of human needs for things that do not really add to man's inner powers—and you all know that the exercise of your inner powers is the only thing that gives you real happiness.

The other day a returned prisoner of war said the blast of universal propaganda and advertisement had the same sort of effect on him as the brain-washing he had endured in the Far East. We are putting up with a great deal of annoyance and failure to meet elementary needs like good housing, trains, furniture, and quiet, and now fuel, because so much attention and resource is going into new technical inventions which we are cajoled into believing are really top priorities. You may think this is only a fad of mine. Even if it is, I do ask you to consider how many things you spend your substance on because your minds and wills are no longer your own but replaced by mass suggestion. And then of course you mistakenly think that your goodwill for your

(continued on page 619)

NEWS DIARY

March 30—April 5

Wednesday, March 30

National Executive of Labour Party decides against expulsion of Mr. Aneurin Bevan from party in view of assurances given by him

Sir Anthony Eden gives details of new defence agreement with Iraq

Government announces changes in Bill to end requisitioning of houses

Dockers in Merseyside and Manchester decide to return to work

Duke of Gloucester is promoted to rank of Field-Marshal

Thursday, March 31

Treasury returns for financial year show surplus of more than £433,000,000 in ordinary revenue

Miners accept new wage proposals for the industry

A trade and payments agreement is signed between Britain and Argentina

Prime Minister answers questions about possibility of five-power conference on Formosa

Archaeologists in Israel claim to have discovered the ruins of the palace of Herod the Great

Australia beats West Indies in first Test match in Jamaica

Friday, April 1

Ministry of Labour sets up Court of Inquiry into newspaper dispute, after a deadlock is reached in talks: Newspaper Proprietors Association express willingness to accept arbitration but unions concerned refuse

Earthquakes in southern Philippines cause casualties and damage

Results of twenty county council elections show no change of control. The Labour majority in the London County Council is reduced

Death of Colonel Robert McCormick, editor and publisher of the *Chicago Tribune*

Saturday, April 2

Men involved in London newspaper dispute vote unanimously to continue the strike. Sir John Forster, Q.C., Chairman of the Railway Staff National Tribunal, is appointed chairman of Court of Inquiry

French Government promises guaranteed wage increases to lower-paid workers

Marshal Voroshilov, President of the Soviet Union, arrives in Budapest



Sir Winston Churchill holding open the door of the Queen's car as Her Majesty left 10 Downing Street last Monday night after she and the Duke of Edinburgh had attended a dinner party given by the Prime Minister and Lady Churchill. Among the fifty-two guests were members of Sir Winston's family, some of his colleagues in the Government (including Sir Anthony Eden), Mr. Attlee, and those who worked closely with him during the war. On Tuesday evening Sir Winston went to Buckingham Palace to tender his resignation as Prime Minister to the Queen



An artist's impression of the Easter Garden which will be open in St. Paul's Cathedral from April 9 to 30. It is being laid out in the south-west corner of the south transept and will be cut off from the rest of the cathedral by tall cypress hedges. At the entrance to the garden, in a niche, will be a figure of the risen Christ (by Charles Wheeler, R.A.). On Easter Sunday a procession of the clergy and choir will pass through the garden at each of the services



The Duke of Rutland has time. This photograph shows castle. On the walls are murals of the castle as an armoury

News Diary (continued)

Many countries celebrate hundred-and-fiftieth anniversary of birth of Hans Andersen, the Danish writer of fairy tales

England beat Scotland by 7 goals to 2 in international association football match at Wembley

Sunday, April 3

Results of further county council elections show Labour losses in Essex and the West Riding of Yorkshire

Sir William Penney, Sir John Cockcroft, and other British atomic scientists arrive in the United States to attend tests in Nevada

Left-wing Labour Front wins seats in elections in Singapore, the first to be held under new constitution

Austrian Chancellor broadcasts on his coming visit to Moscow

Dr. Adenauer discusses refugee problem in western Germany

The King of Yemen is reported to have abdicated

Monday, April 4

The Prime Minister and Lady Churchill entertain the Queen and the Duke of Edinburgh to a private dinner at 10 Downing Street

Latest returns (for March) show reduction in drain on gold and dollar reserves

Commons approve of Britain joining Turco-Iraqi pact

Crown Prince of Yemen denies that his father has abdicated and states that he is besieged in his palace

British Overseas Airways made a profit of more than £1,300,000 in financial year

British Ambassador in Greece instructed to protest about broadcasts to Cyprus

Tuesday, April 5

Sir Winston Churchill has an audience with the Queen and tenders his resignation as Prime Minister and First Lord of the Treasury, which she is graciously pleased to accept

President of Board of Trade announces postponement of decision on policy for cotton industry

The Queen and Duke of Edinburgh visit oil refinery in Isle of Grain

Amalgamated Engineering Union and Electrical Trades Union decide to make newspaper strike official

Conservatives gain control of Lancashire County Council

King of Yemen is reported to have regained control of his capital city

White Paper on balance of payments is published



A queue outside a provincial newspaper office in Fleet Street last week. Owing to the strike of London newspaper electricians and maintenance engineers none of the London national dailies has been published since March 26. The Government's Court of Inquiry into the dispute began hearing evidence yesterday



Castle, Leicestershire, to the public for the first time. The room, which forms the great entrance hall of the Leicestershire Militia who once used a tower in the castle as a prison. The room is of the ninth Duke and his Duchess



'The Royal Hospital from the Archbishop's Palace, Santiago', by Sir Muirhead Bone (1876-1953): one of more than 150 of his drawings on exhibition until April 27, at the City of Manchester Art Gallery



Man loves to wonder, and that is
the seed of his science—

RALPH WALDO EMERSON (1803—1882)

Ever since he watched his first-meteor trail, man has been wondering—about what makes the sky stay up, or why a kettle-lid jumps. From his first uncertain, casual thoughts whole branches of science have been born, and great industries have sprung. His ideas have become facts, and his facts have guided nations.

In the research departments of modern industry today, scientists are experimenting and speculating. Molecular structure, the behaviour of light, the mysteries of temperature—their study of these problems helps to sow the seeds for new sciences tomorrow, and to build finer products today. In the great world of man's economic creation, his power to wonder is the secret of his power to advance.



Esso Petroleum Company, Limited

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neighbours will lead you to want them to have the same things. I am suggesting that a good social order which respects man's personal dignity is not only an affair of governments and systems. It depends on many unorganised habits of mind and behaviour.

I can only refer fleetingly to one of the most precious instruments of a just social order. I mean a genuine system of law—which assures that the egoism of men is counteracted by a recognised system of rights. I must not stop on this vast subject; I would, though, point out that love for the unknown neighbour does not require only good laws, it depends also on a healthy texture in the unorganised relations of men. Another aspect of this is that man is a community fellow by creation, a member of families, neighbourhoods, work groups, and societies for recreation. He finds his humanity shared naturally in his crafts, creeds, professions, and play. If these spontaneous loyalties are weakened by overmastering demands of political power, or mass production or technical mania, then man tends to become rootless and his natural social feeling diminishes. He is violated in his soul and no amount of admonition to be co-operative, or classes in civics or artificial community centres will heal the wound.

I must turn to the second criterion of a just society. We now have to judge the social order by whether it recognises the limitations of man's powers and the frailty of his will. Men are morally and technically fallible. Therefore it follows that love for the unknown neighbours and society will require that men should be able to live their natural lives without expecting them to be all wise and all good. Certainly, the

Christian life often demands heroic fortitude and renunciations, but that is a vocation not to be required of all men, and the social order should not assume it. Christians should protest against any social or technical development which is dangerous or harmful, especially when it is defended on the grounds that if human nature were perfect it would be a blessing instead of a curse. That is, in my opinion, a common piece of unscrupulousness masquerading as high morality in the world of our time. Years ago, G. K. Chesterton pointedly said: 'If soap-boiling is bad for brotherhood, it is soap-boiling and not brotherhood that must go'. Soap-boiling does not seem to us today the biggest threat to our humanity and neighbourliness, but the principle is still sound; and we are not half ready enough to see that a choice may often have to be made between what looks like a good economic or scientific idea and the brotherhood threatened by its development.

There are many forms of self-deception which use the language of religion for overlooking the frailty of man. One is to say that if men's hearts were right there would be no need to bother about the system. But it is just because men are not pure in heart and perfect in wisdom that we have systems to maintain some sort of decency and order among sinners. And love for the unknown millions requires a just social system. We shall not be free of the needs of organisation short of the complete freedom of the Kingdom of Heaven. One last word: every Christian will realise that his love for his unknown neighbours requires him to be on the look out for a particular temptation; it is the temptation of mistaking as a policy for the social good what is only a support for his own personal or sectional interest and way of life.—*Home Service*

Why Capital Investment is Important

(continued from page 599)

of this country it has already been reflected in the worsening of our terms of trade, and we must expect this trend to continue. We shall, therefore, be forced continually to increase our exports and at the same time to reduce our need for imports by producing alternatives at home. In either case we shall need to continue to maintain a high level of investment, even if the marginal earning power of capital in terms of domestic prices is rising. Plans for the building of nuclear power stations illustrate the increasing capital cost of satisfying the growing demand for energy, even more vividly than do the plans of the Coal Board for more and more investment in the mines, as the more easily worked seams become exhausted.

Certainly the figures of investment since the war do not encourage the view that we can relax our efforts. No one can pretend that the British economy is anything but precariously balanced and yet the rate of investment has been at a level unprecedented since the last century. Professor Cairncross has estimated that total net investment—that is after allowing for depreciation—has grown from 3.6 per cent. of national income in 1938 to 8.2 per cent. in 1950 and 10.8 per cent. in 1953; which appears to contradict Mr. Clark. Allowing for a threefold increase in prices this is equivalent to an amount two-thirds more than before the war. Professor Cairncross' figures, however, include housing and other social investment. For industrial investment only, Mr. Redfern's figures show that by 1950 net investment in fixed assets had risen from approximately 2.6 per cent. of our national income to 3.8 per cent.—a rise of nearly 50 per cent. In manufacturing and distribution alone, depreciation had been made good by 1948 and net investment reached a peak in 1950, at 40 per cent. above the level of 1938. Incidentally, these figures make nonsense of the complaints of company chairmen at that time that they were unable, out of taxed profits, to maintain, let alone expand, their plant. Since then, while the total has risen, the proportions going to housing and to industry have been reversed.

I have so far been dealing only with investment in industry or public utilities. A large part of our investment has been going into housing and a growing proportion into other forms of social capital. Whether Mr. Clark is right or wrong that the proportion of our national income which we shall need to spend on housing will fall, there is a backlog of other forms of building which it is likely will be the subject of social and political pressures in the near future. School building, both to accommodate the bulge in the school population and to improve standards, is bound to grow. Our very industrial needs must lead to a

further expansion in technical education involving the building or extension of technical colleges, apart from the existing plans for expansion in the universities. Most of our hospitals are extremely old, and the Government has recently announced plans for the building of new ones as well as for the expansion of existing hospitals and the replacement of plant. Much local authority building has been held up since the war, and staffs are often housed in inadequate premises under conditions that must produce inefficient working. The same applies to many commercial firms who are awaiting the rebuilding of office premises in London and other cities. The truth is that the volume of investment needed if our economy continues to expand is very great.

Mr. Clark tries to comfort us by telling us that if we save 5 per cent. of our national product every year this will be sufficient for our needs in the future. Although he does not define his terms, what he must have meant was that, in his opinion, net investment in fixed assets, that is after allowing for replacement at current prices, need be only 5 per cent. of our net national product. But, even if this were sufficient, it gives us no relief; for last year this ratio was at least 6 per cent., and for each of the previous two years it was 5 per cent. Net investment is, however, only a small part of the story. Depreciation and replacement have to be saved for as well, by individuals who own either houses or motor-cars; by companies out of their profits; by nationalised industries and other public bodies by means of redemption funds and reserves, or by the Government by means of taxation. When this is taken into account, the proportion of the national income being saved for the maintenance or expansion of our fixed assets is already three or four times Mr. Clark's figure. Moreover, as the stock of capital grows so the amount required to maintain it will also grow.

Taking all these factors together, it certainly looks to me as if the demands on our savings are more likely to rise than to fall. I conclude that if in the future we succeed in using capital more efficiently than we have done in the past this may well make our task easier than it would otherwise have been, but that it is unlikely for many years to come to make it so much easier that we shall be able to reduce our present level of investment.—*Third Programme*

To commemorate its three-hundredth anniversary, Mr. A. H. Woolrych has written a pamphlet on *Penruddock's Rising, 1655* for the Historical Association, price 1s. 6d. This was the rising which resulted in the establishment of Cromwell's major-generals. Mr. Woolrych has had access to unpublished manuscripts in the possession of the Penruddock family.



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Letters to the Editor

The Editor welcomes letters on broadcasting subjects or topics arising out of articles or talks printed in THE LISTENER but reserves the right to shorten letters for reasons of space

Are We Exporting Too Much?

Sir,—Mr. Harry Johnson has done the country a valuable service in suggesting that export policy should be reviewed (THE LISTENER, March 24). It is clear that there is a general movement towards economic self-sufficiency, and that the export trade will become progressively more difficult. Moreover, it is dangerous for any industry to become too dependent upon the export trade; demand may fail quite fortuitously, e.g., with the imposition of import controls, bringing with it widespread unemployment.

In suggesting, however, that the restriction of exports would bring a further benefit through an improvement in the terms of trade Mr. Johnson is on less firm ground. I doubt whether the price which British exporters can obtain for their products is determined by the volume that they choose to sell. Other countries, too, are exporting similar goods. In many cases, at least, the restriction of British exports would not have an appreciable effect on the terms of trade; where there is a significant effect part of the benefit will accrue to our competitors in the export trade, since they too will obtain higher prices.

Yours, etc.,

Aberystwyth

J. JACKSON

The Erring Child as a Criminal?

Sir,—While warmly agreeing with Mr. Watson's plea for removing children's courts from the scope of the criminal law (THE LISTENER, March 17) I wonder whether he goes far enough. It is true that child and parents alike must be protected, with the utmost exactitude of proof against even well-meant interference which cannot be shown to be necessary. But in a large number of actual cases there is no dispute as to facts, and, when once the parents have realised that the child's good is being considered, they are quite willing to accept the treatment prescribed.

A welfare committee able to rely on the help of the probation service in a supervisory capacity, and on the co-operation of the Education Authority, and the public and voluntary medical welfare agencies, could, with the consent of the parents or guardians, handle the majority of children's court cases with more elasticity as to age, the exact nature of the child's offences and his needs, than is possible for a court.

Its task to punish an offender, to send him away to a school, to place him under supervision, or order him to make reparation would be based upon agreement. Where this agreement was not forthcoming, or where the parents subsequently failed to carry out their share of the treatment, recourse could be had to the children's court with its guarantees of the rights to legal representation, the access of the press, and the ultimate safeguard of further appeal. Such a committee might well form an adjunct to the children's committee of the local authority in each district.

This plan would give elasticity and informality to our treatment of young delinquents without menace to the liberty of the subject. The fact that it would not put the stamp of criminality on any child does not seem to me a disadvantage.

Yours, etc.,

London, W.11

MARGERY FRY

Leaving School Early

Sir,—Mr. P. J. Hughes (in THE LISTENER of March 24) takes up the cudgels on behalf of the secondary modern school, and suggests that it should be organised more on the lines of the primary school—in other words, that instead of having so-called specialist masters and mistresses for the various subjects and teaching subjects taught in grammar and technical schools, class teachers should be found who would give the children a good grounding in what used to be known as 'The Three Rs'. I think most people would consider this an excellent idea. But his statement that the failure of the secondary modern school means the failure of democracy seems to me to be sheer nonsense. It merely means that an educational experiment has failed.

I spent about eighteen years as headmaster of two grammar schools—one after the other—and I consider that the two greatest disservices to the cause of education were the abolition of fees in the grammar schools and the raising of the statutory leaving age to fifteen. While during the last forty years standards declined in the free state schools (beginning with the abolition of lessons in formal grammar about 1910) the standards in our old foundation grammar schools and new secondary schools remained high, and indeed in some cases became higher, owing to the constant efforts which had to be made to gain successes in the School Certificate and Higher School examination (introduced about 1918 or 1919 and displacing the old Oxford and Cambridge Locals). Alas! Our very success was the cause of our ruin. Looked on with suspicion by Ministers of Education and other products of the public schools because our pupils were beginning to obtain about 60 per cent. or 70 per cent. of the open scholarships at Oxford and Cambridge, and regarded with jealousy by teachers in the primary schools because the Burnham Scale from about 1921 onwards gave higher scales to the grammar school masters and mistresses (most of them graduates or even honours graduates), we were indeed caught between the upper and nether millstones, and the 1944 Act with its *egalitarian* ideas accompanied by parrot cries of 'Secondary education for all!' threw us to the wolves.

Fifty per cent. of my 1946 intake left at the age of fifteen, although their parents had been warned on their children's admission that if they did not intend to keep them at school for five years at least, they should not send them at all.

Only about 30 per cent. or 40 per cent. of the population is educable, in the scholastic sense, for more than the fourteenth year. The grammar and technical schools can provide for these. The rest will receive a far better education in commerce and industry and are at present merely waiting for the happy day when they can leave the secondary modern school. In the Midlands, particularly, boys of fourteen are wanted at the blast furnaces. They used to be available, but now at fifteen, having wasted and idled away a year, being entertained with music and cinemas, they no longer want to go. But I don't expect any government will have the courage of its convictions and put the leaving age back to fourteen, and charge a nominal fee—say £1 a term—for education beyond that age. And so the education rates continue to rise and

the quality of education provided (except in grammar and technical schools) certainly does not increase in proportion.—Yours, etc.,

Liverpool

P. W. BUTLER

Sir,—As a teacher and careers master in a secondary modern school, I am convinced that the 'lines of approach' put forward by Mr. P. J. Hughes would be disastrous. In the early part of his letter he says that the secondary modern school has to deal with a proportion of children who have 'failed to acquire a primary education', but he then goes on to suggest that it should be organised 'more on the principles and methods of the primary school'. This point, together with his condemnation of specialisation, and his claim that the secondary modern school should give not 'a body of knowledge' but 'attitudes and ideas' (as if these were mutually exclusive), rests on the assumption that there is a fundamental, easily discerned difference between secondary modern and grammar school children. It is precisely this assumption, however, which so many of us feel to be untenable. I put forward the following points for Mr. Hughes' consideration.

(1) The recent report on 'Early Leaving' produced by the Ministry of Education abandons the view that most children likely to profit by grammar school education can be picked out at eleven. Much evidence to this effect has been accumulated. An example is the recent experiment in Southampton (*Times Educational Supplement*, September 10, 1954) which led the authority to conclude that in five secondary modern schools 41 children ought to have been in grammar schools, whilst in four grammar schools there were 69 'misfits'.

(2) The great discrepancy in the number of grammar school places, from county to county, makes it obvious that a great many children likely to do well in academic studies are at present in secondary modern schools. In Gateshead, for example, there are grammar schools for only 8 per cent. of the children, whereas in Merioneth there are places for 63 per cent. The significant fact about this is that results in the General Certificate of Education, open and state scholarships, etc., in Merioneth compare very favourably with those in other counties in England and Wales.

(3) Increasing numbers of secondary modern schools are running successful G.C.E. courses, and (most important) persuading more and more children to stay on to take them. In 1954, 68 secondary modern schools submitted 1,243 candidates for the G.C.E. at ordinary and advanced levels.

Nearly 80 per cent. of the nation's children attend secondary modern schools. Many of them go into jobs which, a few years ago, were the monopoly of grammar school children. An expanding economy creates ever more of these jobs, and demands higher general standards of education and better skills. These demands can be met by specialist teachers, given adequate facilities, for the specialist is usually an enthusiast, generally capable of infecting his pupils. They cannot be met by 'class teachers', since it is unreasonable to expect them to be enthusiasts in every subject, or to teach every subject to the level which we ought to expect intelligent fifteen- and sixteen-year-olds to reach.

Yours etc.,

Headcorn

H. K. HOLT

The Coming Arms Race in Germany

Sir,—May I put right two misleading points in Mr. Prittie's interesting talk 'The Coming Arms Race in Germany' (THE LISTENER, March 31)?

Mr. Prittie speaks about 'the Battle of the Nations at Dresden'. This battle actually took place at Leipzig (in German it is called *Die Voelkerschlacht bei Leipzig*) in October 1813 between the allied armies (Germans, Austrians, Russians, Poles) and the French army. As a result, Napoleon had to withdraw from central Europe and to retire to France.

Further, Mr. Prittie speaks about the mythology given to the east German army. In this connection he mentions the Hermann memorial in the Teutoburger forest, 'commemorating an obscure tribal chieftain'. This is an error: Hermann was by no means a mythological, but a very real, figure. He was the prince of the Cherusicans, a Germanic tribe inhabiting the region between the rivers Weser and Elbe. In A.D. 9 Hermann forced a Roman army, passing through the Teutoburger forest, to fight. The outcome was the almost complete annihilation of the Roman force (three legions with more than 20,000 men). Their leader, Varus, committed suicide. The Emperor Augustus is said to have been most upset when he learned the news about the defeat of his army, because, apart from the military setback, this was a severe blow to the prestige of the Romans.

The result of this victory was the forced retreat of the Romans to the Rhine. They never again made any serious attempt to extend their occupation of German territory to the east beyond the Rhine. The fact that the Roman influence was checked at the banks of the Rhine is due to Hermann's decisive victory, and this, no doubt, was an event of significant importance. History would probably have taken a different course should the Roman influence have been extended some hundred miles further eastwards, say, to the Elbe river.—Yours, etc.,

London, N.W.3

PAUL FRANK

The Victorian Conscience

Sir,—Your correspondent Dr. Agnes Savill, commenting on my broadcast 'The Victorian Conscience' (THE LISTENER, March 24), points out that Meredith in his novels deals with sexual passion but not 'in the crude fashion of the modern novel writer'. She implies that this makes them better novels. Up to a point I would agree with her: as C. S. Lewis has written, 'to remove all prudery is to remove one area of vivid sensibility, to expunge a human feeling'. My point, however, was that literary conventions were so rigid that even Meredith's restraint was found shocking. Miss Savill commends *Richard Feverel* for giving readers a high outlook on sex, but this was not the view of the contemporary *Saturday*, which referred to the novel as containing 'some of the most unflinching sketches of immorality that the pen of a modern Englishman has ventured to draw'.

The Curator of the Watts Gallery has also, I think, misunderstood my reference to Watts. I never suggested that Watts disapproved of the use of the nude in art: indeed, I mentioned him to contrast his views on this point with those of Ruskin. I further contrasted his didacticism with the moral, aesthetic of Ruskin. Ruskin certainly did not think that art should teach lessons, the morality of a work being judged not by its power to teach but by its fidelity to art and life. This is a more sophisticated view than that of Watts, and it is all the more surprising to find that it was Ruskin and not Watts who was the prude. The curator doubts whether Watts was a didactic artist, the only pictures falling within this category being 'The Minotaur' and certain pictures 'aimed at the love

of money'. Although these are in a different context they are relevant, and I had in mind especially 'Mammon' and 'Greed and Labour', but there are others. What of 'Conscience, the Dweller in the Innermost', 'Love Steering the Boat of Humanity', 'The Spirit of Christianity' and 'When Poverty comes in at the Door'? These are surely didactic paintings. Watts certainly thought of himself as a teacher of moral ideas. He said of himself:

I paint ideas, not things; I paint primarily because I have something to say, and since the gift of eloquent language has been denied to me, I use painting; my intention is not so much to paint pictures which shall please the eye, as to suggest great thoughts which shall speak to the imagination and to the heart and arouse all that is best and noblest in humanity.

Yours, etc.,

London, W.1 NORMAN ST. JOHN-STEVAS

The Integrity of the Poet

Sir,—It is surprising to find Mr. Robert Graves (THE LISTENER, March 31) writing of W. H. Davies that he had 'solved his problem by becoming a common tramp, until he lost a leg stealing a ride on an American railway truck, and then lived quietly by his pen in London'. Mr. Graves is also an authority upon myth and legend. If he has read Davies' *The Autobiography of a Supertramp* recently one can but suppose that he regards it as a myth. How else could he write of Davies with such a synthetic inaccuracy?—Yours, etc.,

Rye

PATRIC DICKINSON

The New Reader

Sir,—Speculating about the effects of television on reading, Mr. Reginald Pound says (THE LISTENER, March 31): 'Fiction is down; biography, travel, and adventure are up'. This is true only of sales of cloth-bound editions at the original price, and even there any decline must be unevenly distributed. One firm has just announced that its average sale of first novels is 10,000. Before 1939, a first novel that sold 3,000 was unusually successful. Since those days, paper-back reprints have become increasingly popular and important, and in this market novels are selling like hot cakes.

The total sales of books of different categories is not ascertainable. What we do know, thanks to *The Bookseller*, is the number of 'titles' issued each year, and, as publishers sponsor books for which they believe there is a demand, these figures provide a reliable index to public taste. Last year 'titles' classified as Travel and Adventure rose from 149 (in 1953) to 197, Biography and Memoirs remained steady at 507, and there was a fall of 97 in Fiction 'titles'. Even so, the fiction total was 4,204—six times as many as all Mr. Pound's 'ups' put together!

Literary quality is, of course, not arguable statistically. My own guess is that the proportion of trash among novels is no higher than among non-fiction. Your leading article (March 24) suggested that book-buying has increased among business and professional men, who may be assumed to have a bias towards non-fiction. If so, the up and down trends in sales at original prices must be influenced by the comparative scarcity of non-fiction among paper-backs: a reader in search of a novel is always tempted to save money by choosing among hundreds of titles at 2s. or 2s. 6d.

Mr. Pound says that, after viewing a television programme on archaeology, he 'would not willingly read an article or a book' on the same subject. His alternative fascinates me, for I have long held that too many books of non-fiction consist of the substance of an article shamefully padded out. This, however, constitutes their attraction for editors, who perceive

that the padding can easily be removed and the substance of the book published as an article in the form of a review. Most fiction is doubtless ephemeral, and perhaps only one novel in a hundred deserves serious consideration. It does not get it: novels are 'noticed', not criticised. On the other hand, it is a demonstrable fact that among books of history, biography, criticism, and philosophy, not one in a thousand has any chance of outlasting its author's generation. Jeffrey, Froude, Herbert Spencer, Masson, and Dean Stanley were mighty important in their day, but their day is long past. It is Dickens, Jane Austen, and Wilkie Collins who go on being read.

In view of this, I find it extraordinary that the literary press of this country should still be governed by the obsolete convention of devoting almost all the reviewing space to books of non-fiction, many of which are re-hashes of older books and themselves due to be re-hashed by other authors within a few years. After poetry, fiction is the glory of English literature, but apparently only dead novelists (about whom *littérateurs* can bring out urbane books for other *littérateurs* to criticise) impress editors. I suggest that a revision of this absurd convention is long overdue.—Yours, etc.,

London, W.5

JOHN BROPHY

Sir,—Your critic missed one of the principal 'Secrets in the Well' (THE LISTENER, March 31): such archaeological detective work is possible only as a combined operation of various specialists from different institutions. Apart from Professor Turner, who is mentioned in your article, non-'Ministry of Works experts' who took a visible part in the 'pains-taking labours' came also from the Chemical Research Laboratory, D.S.I.R.; the Forestral Central Laboratories; and the Royal Botanic Gardens, Kew.—Yours, etc.,

Ministry of Works,

London, S.E.1

L. BIEK

Pick of Today's Short Stories

Sir,—I think some of your readers may be interested in the fact that I am just about to start selecting material for *Pick VI* which is to be published this autumn. I always look for short stories of less than 4,000 words, recently written, and having a beginning, a middle, and an end. I welcome and will read submissions from British subjects in any part of the world so long as the material reaches us before May 16.

Yours, etc.,

c/o Putnams and Co. Ltd., JOHN PUDNEY

42 Great Russell Street, W.1

Editor

Footpaths in the Peak District

Sir,—Mr. Philip Daley refers (in THE LISTENER of March 17) to 'the original letter ... suggesting that something ought to be done to protect public rights of way' which resulted in the formation of the Peak District and Northern Counties Footpath Preservation Society which now, with pardonable pride, celebrates its Diamond Jubilee.

It may be interesting to point out that a Society for the Preservation of Ancient Footpaths was formed at a meeting in the Manchester Town Hall on November 15, 1826. It was, as Prentice remarks, 'a pleasant association of Tories, Whigs, and radicals and one which, in the successful results of its resistance in many attempted cases of encroachment, spread amongst the country gentlemen a wholesome terror of transgressing against the right of the poor to enjoy their own without anyone to make them afraid'.

This society must have been one of the earliest of its kind, although many were formed elsewhere during this period.—Yours, etc.,

Manchester, 2

E. L. BURNEY

Art

The Painting of Animals

By GEOFFREY GRIGSON

STUBBS, who is quite rightly the hero of any account of horse-painting or animal-painting in Great Britain, worked with the precision of a facsimilist. That was Fuseli's judgement, right or wrong. And between the animal as object and the animal as dumb friend, between Stubbs and Landseer, between the facsimilist and the sentimentalist, creatures of symbol and of personal equivalence came for a while to the painter's canvas, pranced there, quivered and fought. Even Blake painted a noble, altogether symbolical white horse; and when James Ward came to do a portrait of Adonis, the king's charger, he transformed horse into hero, into a heroic beast, its mane rippled by the winds of eternity. Blake would have approved; Géricault, no doubt, did approve.

No such facts are lost upon Mr. Basil Taylor. He maintains, in a new small book with seventy plates,* that the painting of animals is the only tradition in English art which is unique, no other school having produced work of the kind so variously and so abundantly. Other enthusiasts have written about animal painting, but with no critical sharpness, no perspective, no wider imagination. If one of these predecessors (Mr. Taylor's debt to them is always acknowledged) tells us that the Quorn was established in 1698, the Pytchley in 1750, and the Jockey Club in the same year, and that the first Derby was run in 1780, we know that horses, hounds, foxes, jockeys and turf tactics are more important to them than life and painting; we know that the merit of the paintings, by a paradox, will be altogether exaggerated out of deference to the sitters—or the standers. When Mr. Taylor gives such dates, he is explaining the milieu of events and feeling and patronage in which the grave art of George Stubbs was formed and in which a tradition shaped itself, an Anglo-Saxon tradition beginning with Barlow and continuing to Walt Disney. Inside that tradition he can give a pictorial appraisal, an aesthetic appraisal, to the pictures it produced.

When he wrote of Stubbs as a facsimilist, Fuseli put the view of a history painter concerned for the grand moments of tragedy or passion. Here, I think, Mr.

Taylor misses one thing of importance. Stubbs, of course, is the necessary foundation; he does rise to a grandeur both personal and objective. Yet Fuseli's own passion, Fuseli's pictorial moments of crisis, though there was no *animalier*, add something to Stubbs, pointing ahead to Ward and so to Géricault and Delacroix and Barye, to animals filled with the voltage of the artist's own energies and desires, or animals which

are the artist's concept of essential vitality and force. A painting by Ward of a horse seized by a boa constrictor (Plate 53) appears actually related to a drawing by Fuseli which is now in the Kunsthau Zurich.

Mr. Taylor's own sympathies are both for the honest naturalism and for the emotional drama—long as the drama founded on the naturalism and no one else, so far as I know, has either traced so well the naturalistic and emotional genealogy of English animal painting as explained so clearly Géricault's debt to this English tradition. But Mr. Taylor does not pretend that if Géricault borrows from Ward, a Ward is thereby raised to a Géricault. He is much too sober. He writes a historical essay without being dictated by that history of art which tends to reduce the different qualities of different works to counter-indications of style. So



'The Nubian Giraffe', by J. L. Agasse

if he has to begin with Barlow, this provincial favourite of the collector of English drawings is kept in his place—his drawing is not magnificent because of its historical importance; it is still described as 'dry, quiet, unemphatic'. He asks that more notice be paid to Ben Marshall as a painter, since Marshall warmly enjoyed human and animal behaviour, appreciated light and weather, and painted clearly and actively; his pictures, he admits, 'lack distinction in their drawing, in their statement of form and in the manipulation of paint'. In such ways Mr. Taylor is usually judicious, without being either contemptuous, or obsequious, or dull.

A few things are disappointing. I should like to have seen a mention—and an example—of the quick and free horse drawings of John Vanderbank. Sawrey Gilpin deserved more prominence. Agasse, whose firm, delightful paintings effect a union of Stubbs and David, might have been spared one or two more plates, at the expense, perhaps, of Ward (a little overrated by Mr. Taylor, as if to balance the underrating of him in most accounts of English art). A linkage, too, might have been pointed out between Landseer and Courbet in their pictures of deer and snow.

Nevertheless, Mr. Basil Taylor's sensitive essay and his choice of plates (six of which are in colour) light up a good deal more than his subject; or putting it another way, his subject, after all, is a good deal more than the painting of animals—just as to Stubbs a painter was more than the horsiness or jockeyness of the horse and jockey it depicted.



Portrait of a foxhound, 'Ringwood', by George Stubbs

Illustrations from 'Animal Painting in England'

* *Animal Painting in England from Barlow to Landseer*. By Basil Taylor. Penguin Books. 3s. 6d.

The Listener's Book Chronicle

The Formation of the Soviet Union By Richard Pipes.

Oxford, for Harvard. 52s.

The Soviet Régime. By W. W. Kulski. Blackwell, for Syracuse. 65s.

ALTHOUGH THE UNITED STATES has taken the lead in Soviet studies, the early history of the Soviet Union has been strangely neglected even by American scholars. Dr. Pipes' study of Soviet policy towards the national minorities during the first six years after the revolution is therefore an important new contribution to the ever-growing literature on Communist Russia. Some idea of the originality and significance of Dr. Pipes' book can easily be obtained by turning, after reading it, to the jejune treatment of this subject which is to be found in the standard histories of this period of the Soviet state. So far as English scholars are concerned, however, it is only fair to say that such a study would not be possible without the wealth of published material which was available to Dr. Pipes in the libraries of the United States, but not half of which is to be found in this country.

Dr. Pipes traces the story from the doctrines on the national question with which the Bolsheviks set out on their road to power in 1917 up to the formation of the Soviet Union in 1923. His detailed and scholarly narrative is singularly free from passion or judgements—he is much too conscientious a historian for that. In the result, the various elements in the story, such as marxist doctrine, power struggle, Russian temperament, and nascent nationalism in areas which had scarcely developed national aspirations before the collapse of the autocracy, all fall into proportion. Nationalism was inconsistent with marxist doctrine, since it was considered to be no more than a bourgeois relic, destined to disappear as the proletarian state arose. But Lenin was too good a tactician to neglect the value of nationalism as a force to be exploited, and hence self-determination became the official policy of the Bolsheviks—for so long, that is, as they did not yet control the territories of the national minorities.

This policy, together with the lack of unity among the nationalist leaders who emerged after the revolution and the political ineptitude of the White generals went a long way to help Lenin to reabsorb most of the former territories of the Russian empire. Where they did not suffice, he could always fall back on force and fraud, as in the case of Bashkiria and Georgia. Dr. Pipes is not concerned either to condemn or to justify this record. He does not, however, subscribe to the usual argument that the reabsorption of the former territories of the Russian Empire was inevitable because of their lack of viability as independent states. As he says, 'the circumstances under which the national republics of what became the Soviet Union emerged were too exceptional and their life span too short for the record to be used as evidence either for or against viability'.

Not the least interesting part of this book is the close analysis devoted to the conflict between the dying Lenin and Stalin in 1923 over the national question, much publicised by Trotsky. The famous private letters written by Lenin are now published in full for the first time, from the Trotsky archives. Dr. Pipes concludes that Lenin's view suffered from the limitations imposed upon him by his dogma, which failed to allow for nationalism as a passion quite unconnected with the economic interests of the bourgeoisie. Nor could he see

that 'the failures of the Soviet national policy . . . followed naturally from the dictatorial system of government which he had established'. Whether dislike for the results which the system created by him had engendered would have eventually led Lenin fundamentally to modify the system, had he lived, is a matter about which one can only speculate.

Professor Kulski's work is quite limited in its aim. He is not concerned with history or analysis, but has endeavoured to provide a reference book, based exclusively on Soviet sources, which will give an authentic picture of the conditions of life of the various classes of Soviet society—intelligentsia, workers, and peasants. A useful section on 'The Citizen and the State' offers a summary of how the Soviet system of law and government affects every citizen, whatever his class. The material is skilfully assembled, translated, and presented.

The Classical Heritage and its Beneficiaries. By R. R. Bolgar.

Cambridge. 45s.

'The history of learning is not a free field. It is the history of a society'. It is this perception which gives unity to Dr. Bolgar's learned and fascinating volume. He portrays the recovery and transmission of the classical heritage as a continuous process. He is not concerned with a romantic Hellenism, but with the west seeking the roots of its culture and learning to grow from those roots. He has written the history of classical scholarship not as an account of certain brilliant individuals driven to discover the nature of the Graeco-Roman experience by their disinterested curiosity about it, but of the way a society requires the assistance of its scholars at the critical moments of its development. The collapse of the ancient world after the barbarian invasions set practical problems to the men of the new, emerging order, and the old order, which haunted their memories, was at least a point of departure for the solution of these problems. Codes of law, a technique of administration, practical knowledge, the medical corpus—all this had to be recovered and adapted; and after the disappearance of the Roman grammar-schools it meant the recovery of a language. The scholars were indispensable because education was indispensable to this new society. But behind the linguistic research and the recovery of manuscripts; behind pedagogic theory and the debate of the grammarians, there is the impulse of society to achieve its way of life. This is Dr. Bolgar's theme which he develops with meticulous scholarship. It is a book to be pondered, for it raises many questions that are relevant to our own time.

The first question is evoked from the author's chapters on the Renaissance where one begins to sense an uneasiness which is perhaps inherent in the limitations of his subject. For to concentrate upon classical scholarship as the means of recovering the classical heritage may ignore the evidence in other fields which displays how deeply the heritage had in fact been assimilated. The Renaissance precipitates the problem of the artist's relationship to society. 'The scholars of the late Middle Ages', writes Dr. Bolgar, 'had closed their eyes to all that the Greeks and Romans could have taught them about man the artist and about man as an individual seeking for a pattern of life. We must see the Renaissance as adding the last span to the bridge which the Middle Ages had started to construct'. But if the artist and the individual are

in revolt against their metaphysical context they will blow up the bridge behind them, and the last span hangs in the air, isolated. It becomes arguable that the Renaissance was a dissolvent of the classical culture even where it was most conscious of assimilating it. 'It is the genius of the art of north-western Europe', writes Hans Swarzenski, 'that in the patrimony of Byzantine art it discovered and revealed the living Greek element, the organic conception of the human body'. To be exclusively concerned with the evidence of manuscript-transmission may obscure the evidence of artefacts; and it is this latter evidence which suggests that the eleventh and twelfth centuries had attained a deeper assimilation of the classical heritage in the context of their 'supernaturalised' society (where the artist was not isolated) than the Renaissance ever reached through its romantic classicism.

The second question arises from the fact that the history of classical scholarship is the history of a conflict. '*Chrétiens ont droit et païens ont tort*'; if that seems unduly harsh there was at least a continuous ambivalence in the attitude of the Church. Dr. Bolgar tries hard to maintain a scholarly detachment on this point. 'The Christian tradition has figured therefore as a limiting factor which checked men's curiosity and set bounds to their zeal to learn from the pagan past. The further circumstance that such a check may have been beneficial lies outside the scope of our analysis'. But the future of classical studies may well lie in the answer to the question which this provokes, and another remark of Dr. Bolgar's sets the mind to speculation. 'Petrarch', he writes, 'was a Christian even more surely than a Humanist', and Petrarch is a key-figure. For it was the humanist revolt against the *philosophia perennis*—something much wider and deeper than Scholasticism—which eventually brought about the fragmentation of learning, and the contemporary irrelevance, as it seems, of classical studies. Can the classical heritage survive apart from a metaphysical culture? Can a metaphysical culture be recovered without the classical heritage? Perhaps any hope for the future of classical studies will lie, not in their re-instatement to academic respectability, but as an element in some 'underground movement' to recover human responsibility in the sub-human civilisation of the assembly-line.

The Crecy War. By Lieutenant-Colonel Alfred H. Burne.

Eyre and Spottiswoode. 30s.

The medieval scholar is commonly lacking in military knowledge and therefore in case of doubt—which must frequently occur—offends against probability. The soldier-writer is lacking in historical technique required in dealing with contemporary evidence. Colonel Burne has set himself, with determination and modesty, to learn this art and enlisted aid from specialists. He goes from strength to strength. 'The Hundred Years' War' is a misnomer because it stands for a series of wars with gaps. Colonel Burne here covers the first and, since it has no title, invents that of 'The Crecy War'. His subtitle is self-explanatory: 'A military history of the Hundred Years' War from 1337 to the peace of Bretigny, 1360'.

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asons. It is one of the chief merits of a brilliant book that they become indisputable in its pages. First, superior strategy: the author shows that Edward III has been sadly underrated here, that his strategy was always his, and that it was excellent. On the tactical side there is even more certainty. For the moment the defensive had become what Clausewitz says it is, in essence, 'the stronger form of war'. The English nearly always fought their battles on the defensive, above all their opening stages. The third factor's spirit. The English began with the better morale and improved it by victory, while that of the French sank lower and lower. Not a single inspiring French leader appeared before the young Duguesclin, whereas Edward had a hard time to equal in the annals of war. Finally, weapons: the long bow beat the cross-bow time after time. In addition, the English were well organised, the French still a feudal mob. We were on top everywhere.

Colonel Burne is a pioneer. No soldier has previously written this Crecy war. Indeed, though much has been written about the battles of Crecy and Poitiers, few serious attempts have been made to describe the war as a whole. The campaigns in the south-west are little known, even to English historians. The battle of Mauron (1352) has been hitherto not much more than a name. The present work includes everything of significance. It also shows that what have been dismissed as 'raids'—the term '*chevauchées*', so translated as a rule, often in fact stands for more than this—had their own significance and were carefully planned with a purpose in view. His lucidity and close reasoning time and time again make clear incidents which have been muddled by historians.

The author may be said to ride to war on a charger named 'I.M.P.' which has carried him through a number of wars in the past. The letters stand for 'Inherent Military Probability'. This horse is obviously worked hard when contemporary evidence is slight and gets a great deal to do in all medieval wars. Here it has plenty of work in general, though contemporary evidence is sometimes very fair, sometimes meagre. Occasionally rather too much seems to be asked of the willing steed, but it is invaluable. Tactically, no suggestion or interpretation is made which the reader will not acknowledge to be the product of a well-applied intelligence. In the broader picture one would like fuller explanation of the relative ineffectiveness of the English victories. It all ends in the oddest way: a last, almost bloodless, apparently ineffective campaign, a retreat, and Edward gets his treaty at Bretigny, a highly satisfactory peace.

The most controversial phase in the war is that preceding Poitiers. Was Prince Edward trying to get away or eager to get in a blow against the French? What was the exact site of the battle and the direction of the French advance? Colonel Burne's answer to the second question is persuasive. The same may be said of his answer to the first, that the Black Prince was not running away, but that is likely to remain controversial. Certain French historians seem to derive comfort from the theory of an English effort to escape, but in view of what happened to the French army the comfort looks small.

The Old Cause. By John Carswell.

Cresset Press. 30s.

Mr. Carswell's book consists of three biographical studies designed to illustrate the history of the Whig Party. The subjects of the studies are Lord Wharton, George Bubb Dodington, and Charles James Fox. A secondary theme of the book is the development of the idea of a constitutional opposition.

Wharton, the subject of Mr. Carswell's first study, was one of the Lords of the Junto who

ran the Whig Party throughout the reigns of William and Mary and Anne. Apart from a life which was published immediately after his death, no biography of him existed before Mr. Carswell's study, though the salient features of his character and career will be familiar to most people from Macaulay's brilliant portrait of 'the emancipated precisian'. Mr. Carswell's careful and conscientious study, based on unpublished as well as published material, shows how skilfully Macaulay skimmed the cream off 'the innumerable sources' from which he tells us he collected his account of Wharton and how little he left for his successors.

For the second and longest of these studies, Mr. Carswell has had access to the Dodington papers at Harvard, including what is described as 'the unpublished MSS. of the famous Diary', though in fact the only unpublished portions of that document consist of lists of Dodington's social engagements and similar trivialities. The diary, Dodington's chief title to remembrance, is one of those documents which can fairly be described, in the words of a famous epigram, as like *foie gras*, which 'owes its excellence to the diseases of the wretched animal which produces it'. In the circumstances, the selection of Dodington as a representative or typical political figure of his period is somewhat surprising. On the whole, Mr. Carswell gives a very fair and full account of this oddity, who changed his political allegiances as other people change their investments, but usually sold before a rise and bought before a fall, a fact which accounts for his never having succeeded in even getting into the Cabinet. Mr. Carswell exaggerates Dodington's parliamentary influence in crediting him with the power to nominate seven members of parliament; at its zenith it does not appear to have extended to the nomination of more than four members and by the end of his life to have been reduced to two.

In general, Mr. Carswell's studies of Wharton and Dodington and still more his slighter study of Charles James Fox, though well-informed and readable, can hardly be said to add significantly to historical knowledge. The truth is that the eighteenth century, from a historical point of view, is a mine whose richest and most accessible seams have been worked out, leaving the modern historian nothing but low-grade deposits. These yield meagre returns compared with the great strikes of the past, but none the less represent the only unexploited source of new material.

Collected Poems. By Frances Cornford.

Cresset Press. 10s. 6d.

The fact that Mrs. Cornford's austere collected body of verse is dedicated to the 'memory of my old friend and mentor Eddie Marsh' is enough to indicate to what generation she belongs in the genealogy of letters. It may also explain, at least to elderly readers who knew that mentor, what has tended to make Mrs. Cornford aim always at clarity of expression. The simplicity of her work is her own contribution. The two qualities in conjunction have given it a distinction that commands the reader's memory, and is likely to command that of posterity.

This book is the distillation of the poet's life-work, and it fills only 112 pages. That suggests a self-criticism more severe than any reviewer will be able to offer; for here is poetry that at its best stands outside the quirks and prejudices of literary fashion. The poet assures us that

Nothing is changed. The farmer's gig goes by
Against the horizon. Surely, the same sky,
So vast and yet familiar, grey and mild,
And streaked with light like music, I, a child,

Lifted my face from leaf-edged lanes to see,
Late-coming home, to bread-and-butter tea,
and in such pictures reminds us of her origins in Cambridge in late-Victorian days. But as her verse develops with her personality, we see that she is consumed within the vast nostalgic sensuality of the life-force, in Nature and Man, a power always dominant over her intellectual environment. It had need to be so universal and so powerful, for it had to emerge through the discipline of Cambridge academic society, and the traditions and mental endowments of the Darwin family, these latter enough to etiolate the most colourful personality. Mrs. Cornford pokes fun (in the last piece in the book) at that inheritance,

Whoso maintains that I am humbled now
(Who wait the Awful Day) is still a liar;
I hope to meet my Maker brow to brow
And find my own the higher.

It is this sense of humour, perhaps, which has enabled her to slip away from the august company of her relatives and ancestors, and through the consequent isolation, to come into contact with those unseen presences, those 'fallings from us, vanishings' that have filled her poetry with 'light like music'. Her contact with nature is instant and quietly passionate. She describes what she sees and the vision is held for ever. For example, were olive trees ever more economically pictured? 'They are like immortal spirits of other trees'.

English Mediaeval Architects. A Biographical Dictionary down to 1550.

By John Harvey. Batsford. 75s.

The declared aim of this remarkable book is 'to make it possible . . . to discover what is certainly known of the authorship of buildings erected in England and Wales, or by English craftsmen elsewhere, before the year 1550'. Half a century ago, so little was *certainly* known, or, so it seemed, ever could be, that the feasibility of an undertaking such as this would not have been accepted. So much, it would have been said, must ever rest on guesswork as to render the outcome of little value. Professor Pevsner, as recently as 1947, argued in these columns along these lines, adding that in any case the Middle Ages preferred their artists to remain anonymous, which is why the names of the architects so rarely appear in the chronicles of the time.

The last generation, however, as Mr. Harvey points out in his excellent introduction, has seen far-reaching discoveries, the gleanings of research in local records all over the country. Needless to say, this could not have been achieved by one man alone, even one of Mr. Harvey's tireless industry, and the preface pays ample tribute to the range and importance of the contributions of others. Indeed, one of them, Mr. Arthur Oswald, has written about a hundred complete biographies, including several of the longest. The outcome is the assembly of a vast corpus of factual information, the usefulness of which to other workers in this field will be much enhanced by the lavish series of indexes, which fill no less than eighty large pages.

The 'architects' recorded in this book were not of course known by that name: most of them were either master-masons or master-carpenters, craftsmen by training, that is, who had risen by their own skill to the point where designs for important new building ventures could be left in their hands. There was indeed no one else who was qualified. But when all that is certainly known about the undertakings of these men has been duly recorded, there is still, within these pages, plenty of room for speculation and for controversy. How far these reduce the value of the book will be a matter of opinion.

A hundred years ago, it must be remembered, the seas of mediaeval painting still remained



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almost uncharted. Attributions were chaotic. The sorting-out process of the last few decades, to which so many scholars have contributed, has involved plenty of inspired guesses as to authorship, some of which it may never be possible to verify; but quite apart from the pleasure to the art-historians of the 'little game of attribution', the dispelling of much of the old-time ignorance and confusion has been valuable to the non-specialist in adding to his understanding, which is one of the certain bases of a full enjoyment.

With English medieval architects the sorting-out has only just begun: Mr. Harvey is a pioneer. But already a number of instances can be cited, mainly in the late-Gothic period, where the stylistic differences can be best accounted for in terms of differing artistic personalities. The designs of the early Tudor fan-vaults offer a good example. Many people who care for Gothic architecture without having seriously studied it may have felt drawn to the more robust examples, King's College Chapel and the so-called New Building at Peterborough, in preference to the more filigree quality of the Bath Abbey vault or even that of Henry VII's Chapel. Mr. Harvey can tell us that, whereas the two latter were by the Vertue brothers (one or both), the Cambridge vault, with its beautiful precursor under the Bell Harry Tower at Canterbury, was by quite a different artist, John Wastell. And when he turns to Peterborough, where no documents survive, a speculation that here, too, the designer was Wastell is amply justifiable stylistically, and definitely assists the sorting-out process. Mr. Harvey's knowledge of medieval buildings is so extensive that his speculations are always worth having, especially as he is scrupulous in distinguishing the proven from the unproven.

The controversial passages are another matter. Readers of Mr. Harvey's previous books may either nurse the hope, or harbour the fear, that in the sober guise of a lexicographer he may at last have ceased to take sides. If they themselves be ardent amateurs of the medieval, let them take heart! Mr. Harvey is still his incorrigible, interesting, fearless, enthusiastic, coat-trailing self. Listen to him:

Had it not been for the death, in 1528, of Henry Redman [the designer of Hampton Court], English art might have shown itself strong enough to overcome the catastrophe of the Renaissance. (page 274)

What he [Redman] did achieve was sufficient to ensure that the minor brick buildings of England, happily prevented by expense from copying the grand Renaissance styles, should be well fitted to their purpose, suited to their surroundings, and a pleasure to the eye. (page 221)

Yevele [the designer *inter alia* of Canterbury nave] has been styled 'the Wren of the fourteenth century', but this hardly does him justice. . . . St. Paul's Cathedral, regarded as a work of religious architecture, cannot fairly be put on a level with the finest examples of English Romanesque or Gothic. (page 319)

It is unfortunately not to be denied that such statements as these will weaken the authority of Mr. Harvey's voice in the societies of the learned. But what is perhaps more pertinent is that the majority of lovers, as distinct from professional critics and students, of architecture in this country undoubtedly believe all of them to be perfectly true.

The Family Herds. By P. H. Gulliver.

Routledge and Kegan Paul. 25s.

Although no one with any serious interest in Africa still believes that Africans 'buy their wives with cattle', the notion that there are African people who keep stock for no other purpose than as a means of exchange is still widely entertained. Dr. Gulliver's study of stock

rights in two allied tribes, the Turkana of northern Kenya and the Jie of the adjoining part of Uganda, shows how much more complex is the relationship of pastoralists with their stock. Both these peoples depend upon their herds for food, clothing, and some implements. The routine of their daily existence is bound up with the need of the animals for food and water, as the distribution of the members of the family is bound up with their need for milk; a newly married woman, for example, stays until her first child is weaned with her own parents, whose supplies have been increased by the cattle paid to them for her marriage. The intense aesthetic pleasure which these peoples take in cattle, and the importance which they attach to the possession and transfer of stock, are certainly not to be regarded as irrational and unconnected with their material dependence on their animals.

Dr. Gulliver examines in detail the nature of the relationships created by claims on stock. The claims of sons to a share of the parental herd, and those of a man about to marry for assistance in amassing the considerable numbers which must be transferred, are the most important. A single marriage depletes the herd to a level from which it takes some time to build up again, and elaborate ranking systems establish the order in which men may draw on it. A whole network of relationships links every man with others on whom he can call for additional contributions. Sometimes the senior man, whose authority over the whole herd is recognised, takes a second wife while a junior is still unmarried. Sometimes a friend on whom there is a recognised claim refuses a contribution.

Dr. Gulliver gives the real-life reasons for such departures from an accepted ideal of mutual aid. At a given moment there may be two opinions within the family on the advisability of depleting the herds; and where obligations to remoter relatives or friends are concerned, difficulties can arise if a number of requests for help coincide, and not all can be met. The significance in such a system of the right to independent control of stock is obvious. This is every man's aim, but is hard to achieve; not only must the family herd be large enough to divide, but the junior must command enough labour—his sons' or other dependants—to manage a separate herd. Each successive marriage in a family postpones the moment when division will be practicable. Family relationships are largely determined by the tensions which these opposing interests create. The recognition of such competing interests within the framework of rules of joint ownership is not new, but their effect has never been so fully demonstrated in relation to rights in stock.

The Structure of Spanish History

By Américo Castro.

Oxford, for Princeton. 72s.

In 1948 Professor Castro published, in Argentina, his great book *España en su historia: cristianos, moros y judíos* ('Spain in her History: Christians, Moslems, and Jews'), in which his formidable equipment of Romance philology was combined with the latest research in Oriental subjects so far as they affected the history of Spain and Portugal. The importance of this present version (translated by Edmund H. King), which has three new chapters, and three largely re-written, is that it puts Spanish Moslems and Jews and their Christian descendants in their rightful place in the historical development of Spanish civilisation. It will not be popular. Professor Castro writes with the passion of a convert, and there may be room for more than one opinion on some of his historical generalisations, though not on his philology or linguistics. He is in the forefront of those who

are employing the study of language as an aid to the solution of historical problems. To take an example: it is not merely a case of Moslem institutions and the Arabic words for them which entered, by hearsay, into the Spanish language. It is the Arabic meaning, Arabic phrases and ideas which have been borrowed into Spanish and expressed by words of Latin origin: things which the French neatly call *calques*, the Germans *Übersetzungslehnwörter*, and the Americans 'translation loan-words'. We have all heard that Biblical, Semitic expression, the 'son' of something, with no reference to physical paternity: 'son of peace', 'son of perdition', 'son of Belial'. In Catalan, a 'son of charity' does not mean a foundling but a charitable person; so, according to Castro, the typical Castilian word *hidalgo* did not mean son of somebody but son of something: property, money, bounty, or good service.

This idea has outraged orthodox Spaniards; but Castro is honest and allows some of the objections. The *hid-* is 'son of'; that can be proved. What does the *-algo* mean? Not, surely, a person but a thing; and not the obvious Latin *aliquid* but a Spanish perversion of a word in Arabic. The fact that he is always turning up the great Arabic-English Lexicon of Lane—a mine of profound and curious learning—shows that Professor Castro's 'Arab soul in Spanish feathers' is in the right place. The book is the most important thing written about Spain for a very long time.

Moths. By E. B. Ford.

Collins New Naturalist Library. 35s.

One's first reaction to this book is that it is not one for the beginner, but on reflection one is not so sure. As a result of the activities of generations of collectors we know fairly well when and where to find every one of the 800-odd species of larger moths inhabiting the British Isles; but of many of them we do not know why they occur here and not there, differ in various ways from individual to individual and from place to place, spread here, die out there, migrate, vary or don't vary in colour, pattern or numbers, and so on.

The razor sharp curiosity of the author, his disconcerting faculty for finding the weak spot and his incisive logic, turn up an unexpected need for fresh inquiry, further experiment, new investigation on almost every page. This is why in a very real sense the book is truly a book for the beginner, but a beginner of a new type who, like Dr. Ford himself, will seek to uncover, through a serious study of chosen problems presented by our moths, ever more of those underlying principles of natural history common to all animals.

Much of this work requires little or no scientific training, though its planning and analysis certainly will need some knowledge of mathematics, statistics and, above all, genetics. A particularly pretty example of the kind of work waiting to be done is provided by Dr. Ford's own observations on one of our very commonest butterflies, the Meadow Brown, in which it has 'only lately been observed that the distribution of spotting on the underside of the hindwing is of an exceptional nature and . . . provides a sensitive indication of evolutionary divergence'. This companion volume to *Butterflies* by the same author is indeed an inspiration. It makes lucid but not light reading. It has a few slips here and there and still employs the maddening system of numbering and 'explaining' the very beautiful plates that is so distressing throughout the series. But this should not deter the enthusiast from joining Dr. Ford in night excursions by balloon in search of high flying moths or feasting with him on insects suspected of being distasteful.

CRITIC ON THE HEARTH

Weekly comments on B.B.C. programmes by independent contributors

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DOCUMENTARY

Views of News

A SMALL CONSOLATION of the newspaper strike is that it has checked the flow of third-rate journalism from those whom television has elevated to the heights of popular acclaim. There has been more positive virtue in the appearance on our screens of representative newspapermen. Many more people than at any previous time have been seeing and hearing those who collect, write, and edit the news and discovering that they are not unworthy heirs of Milton, whose voice in this realm has been all but stifled by about 800 technicians, concerned in maintaining machines rather than the traditional significance of the printed word.

Complaints that the B.B.C. was slow in meeting the emergency overlooked or ignored some imperative considerations. It was an emergency which from hour to hour might have ceased to be one. Again, while its Charter requires the B.B.C. to inform as well as to educate and entertain us, its policy is not to use its monopolistic force to exploit a crisis situation to the detriment of other interests, including those of both sides in the present dispute. I could believe, too, that the B.B.C. respects the rights which the newspapers and specialised agencies have long established for themselves as organisers and distributors of the news. There is at least tacit acknowledgement of that indebtedness in the fact that the Corporation staffs its news division with newspaper-trained men.

Has the B.B.C., then, fairly discharged its public obligation in this unprecedented news breakdown? My answer is: Yes, remembering that when we speak of the public we imply an infinite number of sectional interests, many of which have been clamorous in their demands for news bulletins giving Stock Exchange quotations, commodity prices, racing news, and so on. Additions have been made to the sound-only news bulletins and to television 'News and Newsreel', the last-named effectively supplemented by the programmes of discussion and comment already mentioned. Drawn chiefly from the national daily newspapers, the various spokesmen have made full use of their opportunity to create an atmosphere of goodwill and especially to dispel the malignant notion that newspapers are produced by

conspirators against the common good. Incidentally, they have also made an imposing disavowal of the lean and hungry journalist of stage convention, particularly when Francis Williams has been in full bloom in front of the cameras and William Hardcastle in marginal support. It might be true to say that in presenting these programmes, B.B.C. television

what miracles of interweaving sound they can produce with orchestral aid, cast a weird, enthralling spell on the ear. Later in the week the cameras went on pilgrimage to nearby Wells Cathedral, providing us with a programme unsurpassed pictorial excellence and a more than parenthetical reminder of how insubstantial are the values with which television is most usually concerned.

In 'About Europe' and 'International Commentary' we were plunged again into the vortex of power politics, with Richard Dimbleby showing us the splendours and miseries of present-day Vienna and Christopher Mayhew trying to make the voice of reason heard above the discords of coexistence. Vienna, a professor of its university told us, is a dying city. But, one of its music administrators also told us, it loses £100,000 a year on opera. *Café* and kindergarten alike were a source of attractive pictures and a heightened sense of futility. 'It is not like the old times', said a head waiter who learnt his English in the London of 1912. 'Our deaths outnumber our births', said an education official. There was a certain amount of unnecessary if not too obtrusive background music; also an unfortunate remark from Dimbleby (perhaps it was in the script), when the camera showed us two British soldiers' shop-window gazing. 'But there are many more interesting people to look at than that'—hardly a compliment to the 1st Battalion of The Middlesex Regiment (Duke of Cambridge's Own), at present on duty there.

'International Commentary' had as its theme for the week the aims of the Western Powers, stated in the first place in terms, which Christopher Mayhew considered would match the Russian attitude. Having formulated them, he submitted them to the test of critical comment by the *Daily Worker* man in Moscow, Ralph Parker, the subsequent exchange being made audible to us via a telephone line from that capital, another demonstration of the flexibility of television in drawing on every available method of communication. 'What the Russians want', we heard Parker saying, 'is less talk of strength and deterrents'. Then the western point of view was put to us by Mayhew, who had for consultants Major-General Lyne, speaking as chairman of a United Nations commission and also out of his personal contacts with the Russian forces in Germany during the war; and Romney



Steps in Wells Cathedral, worn by the feet of countless pilgrims, shown in the television programme on the cathedral on April 1

Reece Winstone

has rendered a service as valuable to the press as to the public.

The week had begun with a descent into the cavernous regions under the Mendip Hills in Somerset, where Wookey Hole was the setting for a demonstration of the working methods of archaeologists and cave divers intent on finding new relics of its witch-haunted past. The pictures were unfailing in their appeal to the eye, and the attendant echoes, amplified to show

other demonstration of the flexibility of television in drawing on every available method of communication. 'What the Russians want', we heard Parker saying, 'is less talk of strength and deterrents'. Then the western point of view was put to us by Mayhew, who had for consultants Major-General Lyne, speaking as chairman of a United Nations commission and also out of his personal contacts with the Russian forces in Germany during the war; and Romney



As seen by the viewer: 'Quest for Charlotte' on March 31: Haworth Parsonage, the Brontës' home; and a room in the house

'John Piper', a film study shown on March 30: 'Windsor Castle', one of the artist's works; and John Piper in his studio

Photographs: John Curd

Wheeler, a spokesman for the United States. Increasingly we viewers are made to feel the urgency of present world problems, not only by force of disputation but because the arguments are made to reverberate in the privacy of our homes, with the expressions of the speakers reinforcing their convictions and doing perhaps as much as their voices to form ours. This intimacy of communication is indeed an invidious business.

Documentary television last week had considerable recourse to film, not only in 'About Europe' and 'International Commentary' but in 'Quest for Charlotte', in which we were taken on a well conducted tour of the Brontë environment; 'John Piper', another B.B.C. television film in the intermittent series in which John Read analyses the work of contemporary artists; and 'Fine Weather for Ducks', a B.B.C. television film study of climatic contrasts in England. 'Snapshot', finishing its uneven course, left us delighted in equal measure by the story-telling of Sir Alan Herbert on 'Monty', Sir Edward Spears on General de Gaulle, and Mrs. Gerald Legge on an eloping ancestor. She put all the panel-game ladies in the shade.

There was also effective outside television broadcasting from Richmond Ice Rink and the Royal Albert Hall. Charming young skaters engaged the eye at the first-named while at the other place amateur wrestlers confronted us with anatomical intimacies which no doubt set wits aflame in those saloon bars where the old telly is now an indispensable part of the furniture.

REGINALD POUND

DRAMA

Children

WHAT A GULF separates the Groves (now coming up to their second Good Friday) from the Fairchild family, exemplars to the nation in former years. No doubt it is largely the idiom which seems to estrange them, yet I cannot imagine in any circumstances that Grove junior, or young Tommy Appleyard, for that matter, would ever cry out in the agonised accents of Henry Fairchild: 'O Papa, I no longer want to have my own way as I had this morning; indeed, Papa, I do not'. We have buried all that, yet it lingers in memory.

Just at present young Tommy Appleyard's adolescence and future occupation are weighing rather heavily on the nation. He seems uncertain what he would like to become in the glorious estate of manhood. The old choices—missionary or engine-driver—no longer appeal. A smooth talking trick-cyclist gent was trying to help him this week. I believe the effort might have succeeded if only Mum could have been left out of the consultation. She kept speaking up for her offspring or even menacing him ('Just you wait till Dad hears about this, I never...'). Asked if he 'had any hobbies' (most irritating of all superior adult questions ever posed to children), the lad cast down his eyes and reflected. But Mum was in like a flash, explaining how his interests 'seemed to come in spazzums'. Then, out it came: he wanted, as we all do, to be a space pilot. At this, old humbugs set up the expected wail. Pernicious fiction. There is no such job, etc., etc. To which the boy with spirit rejoined that there soon would be—and after all these weeks of 'The Lost Planet', who shall blame him? By such was the Empire founded.

It has been very much Children's Week, what with Hans Andersen and a final Sunday play about a shy wife who wanted children (Barbara

Mullen looking pathetic). The Danish genius—if such is the word for Denmark's national poet, and we can surely accord him no less—was celebrated by one of those maddening films made up of still pictures, with a few moving ones of hands moving, horses' hooves clip-clopping, and the rest. Also some dozens of close-ups of Andersen himself: a face to inspire the willies, if those creatures can exist beside 'a fairy, a fairy from Andersen's Li-brary'. It is the poet's galoshes, seen at Odense in the museum and never forgotten, which have somehow (and at least metaphorically) stuck in my gullet. I cannot rid myself of the feeling that he is faintly sinister: and this film did not help me to do so.

Meanwhile, with live drama on the screen rather in the doldrums, we adults could do with more films. Rather than many a repeat of such



'The Grove Family' on April 1, with (left to right) Ruth Dunning as Mrs. Grove, Margaret Downs as Daphne, and Christopher Beeny as Lennie



'Broken Silence' on April 3, with (left to right) Barbara Mullen as Madge Wade, Sebastian Shaw as Henry Wade, and Ursula Howells as Alison Bailly

paperchases as that Sunday-Thursdays play about his lordship, we would willingly settle for a telerecording of some piece which *had* in fact proved enjoyable in the past. I believe, too, there would be a delighted public for 'old silents', such as now draw the crowds at the National Film Theatre. The programme on the old Biograph cinema was a great success. Let us have more old films rather than bad new plays. As it was, a telefilm in fact saved the week from total lack of distinction: the B.B.C. having in an unguarded moment booked 'The Unguarded Hour' without its copyright, we were treated to a second help of Lionel Browne's 'For Dear Life', which I am bound to say stood up far better to second sight than I expected. The quality of the telefilm was excellent. Now, I had better drop the subject: like a character in one of last week's afternoon sessions, I must say 'Let's take a walk and forget right all 'bout the Cisco Kid, huh?' But it is not so easy. Frankly I envy the children their films, just as I envy them 'All Your Own' which is far more entertaining than many a Variety bill.

This Sunday 'All Your Own' showed us a unicyclist from Blackpool; a budding pianist who works at a switchboard; a staunch Scottish girl who makes horses out of felt and leather; a Brighton choirboy who has lost his voice and a pretty Mancunian danseuse who had lost her breath; and finally a cherub from the Rhondda valley who kept 'budgies' and whose pronunciation of such terms as 'Java sparrows' set the

mountains singing. Shyness and a sense of occasion make fascinating viewing. It is insincere competence and false high spirits (without artistry) which make such a depressing spectacle. Let us name no names. But compared to programmes X, Y, and Z, 'All Your Own' is an enchantment: at the end I was clucking and cooing like Hans Christian Andersen himself.

So to the Sunday night play, which repeats itself tonight. This was 'Broken Silence' by Joyce Howard, and after the broken silence of two gramophone substitutes for the start, we plunged direct into the drama, which could shortly be called a classical triangle (*1 m. 2 f.*) set in Highgate Village. Barbara Mullen, as clumsy Madge, broke a vase: Beatrice Varley as the astringent 'help' reproved her: Sebastian Shaw as the kind spouse begged her not to take-on: Ursula Howells, the other woman, bereaved, tactless ('what *did* I say?') and poised, made her entry. 'Poised for what?' Watch tonight!

PHILIP HOPE-WALLACE

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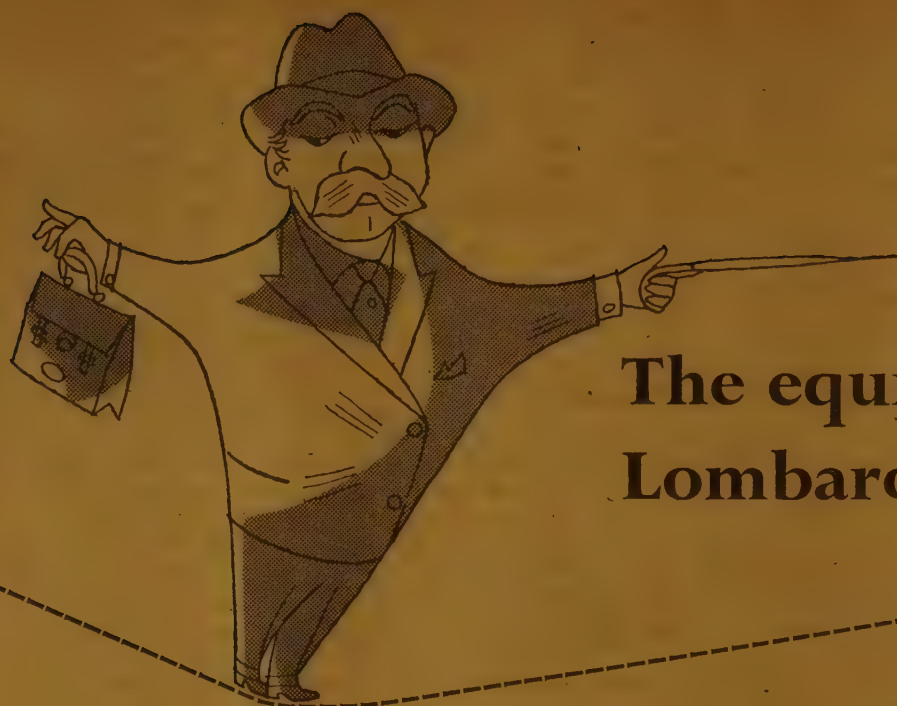
DRAMA

Gun and Bomb

A LIVELY WEEK this has been, the Peninsular War fought all over our hearths and an atom bomb crashing down in the garden. True, we have had a certain amount of light relief as well. Call it, then, tragical-historical-mildly comical. 'Pastoral' is missing. Another time, perhaps?

First, 'The Gun' (Home Service), historical-tragical. Here was a play, by Kenneth Langmaid and Charles Lefeaux from C. S. Forester's novel, that proved what narrative thrust can mean. The leading part in this (let us say) fictional document of the early Peninsular War is the narrator's part, James McKechnie was always there in waiting, the omniscient voice, while, to illustrate his story, the gun—that bronze talisman of war—moved from master to master through embattled Spain. It was fiercely stirring: no quarter asked or given. The gun, the eighteen-pounder left by a routed army in the mountains of northern Spain, soon developed a personality. It shared the centre of the mind with the narrator. When it died, shattered at last by the French, the play died: we felt the loss almost as though a human being had been killed—surest proof of the clench of Forester's narrative and its translation to the air.

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its first years especially when the scattered Spanish guerrillas sought desperately to harry the French garrisons. In the play Anthony Jacobs, as that almost megalomaniac bandit, Carlos O'Neill, used all that savage, exulting drive of his—doing everything with the microphone, I would say, except chewing it. But, urgent as all were in Mr. Lefeaux' production, the night rested upon the craft of the storyteller, upon the line and colour, the pictorial quality, of Mr. McKechnie's voice as it led us through a tormented Spain, a falling Spain where the beautiful names flowered among a smoke of cannon and musket. And always the gun—the gun with its inscription, 'And our mouths shall show forth Thy praise'. There was indeed the rigour of the game across our swept hearths last Saturday night. By ten o'clock every room was a littered battlefield, the gun pounding away above.

After the gun, the bomb. Robert Bolt, author of 'The Last of the Wine' (Third), says that the piece 'is not intended to be a sermon but a satire, which is a branch of comedy'. It struck me as a grisly business. The little victims who play, half-conscious of their doom, say nothing in particular though they talk a great deal and the dramatist has taken care to present a range of types.

Eden Phillpotts once wrote a drama about the coming dissolution of the world; but the world did not end. I said then that no dramatist could hold the Last Trump. Now, in effect, Mr. Bolt holds it and plays it when the atom bomb (April 12, 1955, for your engagement diaries) hurtles down at the end of the evening. (It sounded to me like a hearty welt on a gong.) 'Just now', observed the grandmother, voiced coolly by Fay Compton, 'the reasonable and the unreasonable seem equally improbable'; and I have to regret that since, in spite of the efforts of his players and producer, Mr. Bolt has not fired me with any special concern for his people, the Last Trump mattered very little indeed. Obstinate once more, I dip my head into the sand, burrowing away like a doomed ostrich.

The domestic jars of 'Family Happiness' (Home) were much more absorbing. May Agate, working on Tolstoy's novel, has fashioned a brief, sensible play. At the end, romantic passion and its sequels spent, the husband and wife can leave behind 'the days of wane, dejection, bitterness and pain'. Masha and Serghei have pushed through their thorn-brake and their marriage will last.

I must confess that my sympathies were with Masha, acted with spirit by Adrienne Corri. Her husband, I fear, may grow into a bore (no reflection upon the actor, John Arnatt).

I was sorry that a sustained (and purely local) mechanical defect—a noise like the Last Trump—robbed me temporarily of Henry Reed's 'Vincenzo' which I hope to catch on its next repetition: one would not willingly lose Mr. Reed on Renaissance Italy. My other listening of the week has been moderately historical, the second instalment of 'The Fortunes of Nigel' (Home), and moderately comical, 'Take It From Here' (Light). I valued the first for Duncan Macrae's loving re-creation of Scott's James I, that 'awkward-looking gentleman', the pedant with his 'kind, familiar, and good-humoured manner'. This performance had the authority of an Old Master.

We dipped into the future in 'Take It From Here' where Jimmy Edwards, as an antique dealer of 2155, explained in his burnt-toast voice that a sign labelled 'No parking odd dates' probably meant 'Do not take peculiar girls into the park'. It is another programme in which at times the reasonable and the unreasonable can seem equally improbable.

J. C. TREWIN

THE SPOKEN WORD

Robots

DR. MAGNUS PYKE is a shocking broadcaster, and I had better explain at once—the law of libel being what it is—that I am using the epithet in the strict, not the colloquial, sense. A talk from him, I have discovered, is apt to bounce us out of our vegetable equanimity and set our minds or our sensibilities ticking like an electronic computer. Some time ago he broadcast a grisly talk on the use of insects as food which gave me the cold shudders. Yet to the mind unfettered by habit and prejudice the idea would open a prospect of wonderful new experiences, and surely to dine off insects is a much less gross way of sustaining life than to chew fragments of large, four-footed beasts. Such were the thoughts which passed through my mind when I had recovered from the sensations stirred by Dr. Pyke's talk. Last Thursday his theme was less disturbing to the squeamish stomach, but it prompted the mind to some refreshing gymnastics. It was a 'Science Survey' talk on 'Automatic Factory Life' and was occupied mostly with the electronic computer. He pointed out that machinery, from the spinning-jenny to the modern canning factory which makes the tins, fills them, labels them, and does everything else down to packing them for transport, has simply eliminated manual labour, whereas the electronic computer eliminates mental labour by performing elaborate calculations at superhuman speed.

Undeniably this is already a highly accomplished engine, but what raises the hair and bates the breath is its potentialities. A machine of this kind could be made today, Dr. Pyke declared, which would render superfluous the Stock Exchange and all its members. Would it, one wonders, also produce the stories which are believed to emanate from that historic institution? Evidently we are entering on another Industrial Revolution and the imagination, let loose by Dr. Pyke's arresting talk, takes flight in speculations on how we shall occupy ourselves when drudgery is abolished and all our needs and even our luxuries are supplied at a trifling expense by machines that produce more fuel than they consume; for that, I gather from the Home Service broadcast the same evening on 'Atomic Energy in Industry', is what some of the factories planned in the White Paper, *A Programme of Nuclear Power*, will do.

In this broadcast Sir Christopher Hinton, Managing Director of the Industrial Group of the Atomic Energy Authority, answered questions put to him by a metals manufacturer, an engineer, and a fuel economist. The discussion took me into very deep water in which I was not always afloat; but my interest was riveted by the unhesitating promptitude and clearness with which Sir Christopher answered every question put to him by these specialists. Here, at least, the human brain exhibited powers which no electronic computer could hope to emulate.

In a 'Prospect' talk called 'On the Frontiers of Knowledge' which treated of another branch of science, Richard Llewellyn Davies described the architect's problems in designing such modern buildings as hospitals and airports, in which changes in requirements have been so rapid that there is no tradition that can be followed. The authorities controlling such buildings do not themselves know what they want and so it is impossible for the architect to make satisfactory designs for them. Therefore, he said, architects must be trained in the various branches of the knowledge they need for such work, just as those entering the medical profession have to study under various specialists. For this purpose a number of research groups have already been formed. This was a first-rate and extremely enlightening talk.

It was comforting to turn from these cold schemings of the human brain to matters of the human heart and listen to Gladys Young's beautiful reading of extracts from Mrs. Gaskell's *Life of Charlotte Brontë* interspersed with other passages from Margaret Lane's preface to the book, read by Betty Hardy. The voices of the two, both admirable readers, are so sharply differentiated that the listener was never in doubt about which writer was being read. The programme commemorated the centenary of Charlotte Brontë's death.

MARTIN ARMSTRONG

MUSIC

Bartók and Stravinsky

THE CONCERTO FOR ORCHESTRA by Bartók and four works of Stravinsky have not placed an exceptional emphasis on these composers. Yet as the week's broadcast music floats to the top of the mind these are the principal figures who emerge. Gradually Bartók and Stravinsky are appearing to be among the last composers of our time—the others, I should say, are Schönberg and Vaughan Williams—who have satisfied what, in another sphere, Stephen Spender has referred to as the main demand we make of an artist, namely that he should create a world.

Certainly the world of Bartók was, and is still, very novel—so novel, in fact, that the impact of his stark, primitive art has sharpened our perception of other music, notably Beethoven's. And, indeed, something of the spirit of Beethoven did persist in Rafael Kubelík's remarkable performance with the Philharmonia Orchestra of Bartók's Concerto for Orchestra, particularly in his manner of underlining the tragic sarcasm of the fourth movement. Here, as in the introduction to the finale of the Ninth Symphony, was music of some kind of irresistible violence. A root vitality surges in this late work of Bartók, the influence of which was felt in other works heard during the week: the 'Cantata Secularis' by Matyas Seiber, for instance, and the three string quartets by the Danish composer Vagn Holmboe. Inspired by Bartók's primitive style to provide illustrations of medieval Latin poems on the seasons, Seiber's work offered stylistic associations of music and poetry that were, in their picturesque way, entirely appropriate. Holmboe, whose accomplished work I do not recollect having heard before, ingeniously reflects the style of Bartók's great quartets. His music sometimes remains on the paper on which it was written, it does not display a great variety of feeling, but it is remarkably fluent and shows a real flair for using the subtle resources of the string quartet.

It was good to hear the whole of Stravinsky's rarely performed ballet 'Pulcinella'. Two performances were conducted by Leighton Lucas. As most of us are now agreed, Stravinsky's individual contribution over the years has amounted to a musical patch-quilt utilising each of the historical styles that happened to have been in vogue, and that is still being pieced together. Therein lies this veteran composer's highly contemporary appeal—he has been the mirror of our mania for historical rummaging. In the 'twenties the eighteenth-century Italian composers were being resuscitated, and 'Pulcinella' cleverly caricatures the music of Pergolesi. The well-known 'Firebird' suite, of which Walter Goehr gave a spirited performance with the B.B.C. Symphony Orchestra, reminded us of the young Stravinsky's allegiance to Rimsky-Korsakov; while the day before, the new Shakespeare songs, admirably negotiated by Nancy Evans, seemed to point to Stravinsky's interest in—well, from whom do the jagged leaps in this ungrateful vocal music derive? I think from Anton von Webern, the composer whom, it is reported, Stravinsky now particularly

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admires. To our English ears these strange, almost disintegrated songs seemed odd illustrations of Shakespeare, but they are by no means an insignificant contribution to the patch-quilt pattern of music Stravinsky has devised.

Ernest Bloch's 'Sacred Service', on the other hand, once a work which led this composer's admirers into proclaiming him a musical prophet, now seems to me to have dated. It is a sincere work, written by a devout and idealistic composer, but its heavy emotionalism has lost the appeal it undoubtedly made in the pre-war years. The reason, I am inclined to think, is that its high-pitched fervour is too theatrical for our present-day conception of liturgical music; and certainly there is something not altogether authentic in the ring of those rhetorical climaxes.

A pity, for apart from the much more intimate version by Darius Milhaud, the Jewish liturgical service has not so far inspired any other contemporary musical setting of lasting value. All of which is not to belittle the commendable efforts of the B.B.C. forces under Sir Malcolm Sargent—the intonation of the sopranos was a blemish—and of John Cameron who completely entered into the spirit of the florid baritone solo.

Donald Mitchell's talk on Mahler and Freud led to some interesting speculations. The talk included an account of a meeting in Holland between these two Viennese figures (to be dealt with more fully, it appears, in Dr. Ernest Jones' forthcoming volume on Freud's life and works), and it also attempted to interpret some aspects of Mahler's music in the light of Freud's obser-

vations of his character. It is profitable to bring music out of its professional groove and to see, where it exists, the impact on the work of a musician of a great mind in an associated field. Mr. Mitchell's comments on the possible connections between a psychological diagnosis of Mahler's character and the stylistic elements of his music, particularly the reasons he gave for Mahler's addiction to those disconcertingly popular elements in his style, were not only illuminating in themselves. They reinforced my belief that the time has come for a wider application of such a method to the biography of musicians in general—in the way, in fact, that it has long been applied to biography in the literary and historical spheres.

EDWARD LOCKSPEISER

Lennox Berkeley's Orchestral Music

By WINTON DEAN

Berkeley's Symphony will be broadcast at 7.0 p.m. on Wednesday, April 13 (Third)

FOR good historical reasons the revolt against romanticism began later in England than on the Continent. Despite the lone pioneering of Holst, the generation of Ireland and Bax stood at the opposite aesthetic pole from the neo-classicism of Stravinsky, their exact contemporary. Even Walton, twenty years younger, though he enlivened English music with a pleasing touch of astringency, has always been a romantic at heart and in method, as 'Troilus and Cressida' has recently confirmed. But Walton came young before the public; Lennox Berkeley, only a year his junior, matured very slowly. Before the war he was credited with a predilection for neo-classical ideals, Stravinsky, *Les Six*, wrong-note harmony and wrong-foot rhythm. The possession not only of a French grandmother but of a French musical education, including six years under Nadia Boulanger, was thought to place him outside the English tradition: surely modern Parisian music with its clatter of broken crockery, farm implements, and locomotives—not to mention the sewing-machine—was no decent model for a young English composer.

This view was superficial (to say the least) because it did not allow for growth, but it is worth recalling as an indication of the remarkable distance Berkeley has travelled since 1939. It is true that he was influenced by the patterned percussiveness of Stravinsky's Paris period and the alternate succulence and skittishness of early Poulenc. Furthermore these models, though long assimilated, left a permanent mark on his music; he still prefers neat patterns and economic textures, and abhors perorations, romantic sob and throb, and the lush tapestry of post-Wagnerian orchestration. But the composer who could greet the outbreak of war with the vernal freshness of the *Serenade* for string orchestra, whose score bears the date 'Sept.-Nov. 1939', was no blind follower of an alien tradition. Although its kinship with the lighter music of the eighteenth century is obvious, it is completely free from pastiche—more so indeed than many of the works of its trail-blazer Stravinsky. Structurally the most remarkable feature is the slow finale, which (exceptionally in a diversionary work) carries the deepest weight of feeling. It fills the mind in retrospect, but not to the exclusion of the rest of the *Serenade*; the allusion to the first movement in the closing bars is a natural growth, not a tag.

Berkeley, who had written no orchestral work of importance before the war, at once consolidated his position with a Symphony, composed in 1940. This is still his biggest work for orchestra, and will always appear a landmark

in his development; it is also one of the first English symphonies in which the eighteenth-century idea of the symphony as entertainment is fused with its later connotation as a vehicle for serious thought. The *Allegretto*, a kind of waltz-mazurka in the tradition of the classical minuet, is a graceful manipulation of formal musical patterns, which engages the mind and gratifies the ear. But the gloomy *Lento* dives suddenly into more troubled waters, and the nimble finale, a rondo with considerable contrapuntal resource, resumes the role of entertainment without abandoning the world of thought and feeling. There is nothing pretentious or inflated about this symphony; the sudden end is characteristic, for Berkeley stops as soon as he has finished and never bangs the table to work up extraneous excitement or applause. But its idiom is considerably harsher than that of the *Serenade* and many later works. It is a serious composition that repays acquaintance and rewards study.

Since the Symphony Berkeley has added a *Divertimento*, a *Nocturne* and a *Sinfonietta* to his orchestral output. (He has only to produce a cassation to complete the eighteenth-century cycle, though there is no reason to suppose that he will not duplicate his titles; he has nothing of Stravinsky's horror of counting up to two.) These are all light works, as their titles imply, and they may not explore much new territory; but they range their own preserves in mature self-confidence. The *Divertimento* offers another waltz-mazurka, the *Sinfonietta* a *Lento* middle movement of great beauty. The *Nocturne*, to be distinguished from the 'nocturne' slow movement of the *Divertimento*, shows that Berkeley's classicism no longer shies at the romantic. It is sensuous and impressionistic; while not abating his natural clarity of form, he adds an atmospheric suggestiveness that is new, even if it can be traced back to Debussy.

Berkeley's development may have been delayed by the need to react not only from romanticism but from anti-romanticism. Neo-classicism is a manner, sometimes a pose; classicism is an attitude of mind, free to accept elements of varying provenance. The agency through which Berkeley achieved an integrated style was a lyricism which, though it owes nothing to folk song or the Tudor revival and is indeed not dependent on words (while often beautifully co-operating with them), can be recognised as specifically English. It is most easily sampled in his slow movements, which always bear the main weight of emotion, and in some of the Preludes for piano. The flavour may be described as an astringent nostalgia, a bitter-

sweetness of a type that renders his music easily recognisable. It derives partly from the friction of lively inner parts, but is by no means dependent on counterpoint. Berkeley is one of the few modern composers who can achieve real distinction in a simple tune and accompaniment, even an accompaniment of repeated chords—a sure sign of melodic strength. In his early work the bitter and the sweet lay alongside without coalescing, a situation exactly paralleled in Poulenc. For a time his native lyricism appeared to be suffocated by an alien spikiness of line. But the French training was more than justified in the event; nothing was lost; the graft, though slow to take, has been wholly successful. As the lyrical element reasserted itself it was able to digest harmonic acidities that might have appeared gratuitously gritty without such a solvent, and to use them as a source of creative friction. A similar process has been at work in his orchestration, whose clarity of line and colour produces its own poignancies of timbre.

Berkeley's treatment of classical form and tonality also owes something to France. While accepting the traditional inheritance, he approaches it obliquely and allusively, preserving just enough to hold the music together without entrenching upon his freedom to depart from the norm. This in essence has been the method of Fauré and Roussel and other French composers. It can produce music quite as original as any revolutionary system, and has the great advantage of allowing the composer to play upon the listener's expectation and use in evidence what is not spoken in open court.

The first and last movements of the Symphony are in sonata and rondo form respectively, but retain a peculiar capacity to lead the listener up the garden. It is characteristic of Berkeley's style that while his 'recapitulations' are always varied, embroidered or disguised, his expositions are often built up of exact or transposed repetitions of tiny units, often melodic figures of two or three notes. There are many passages in his work that seem to derive from the threefold kiss theme in Verdi's 'Otello'. Berkeley is so little of a programmatic composer in his instrumental music that such a source might appear far-fetched, were it not for his recent incursion into opera—and two kinds of opera at once. This has disconcerted some of his admirers and even provoked the unworthy suggestion that he has abandoned his true path in search of popular success. The truth is that a style so well founded is able to expand and embrace new experiences. The process of growth may yet have surprises in store.

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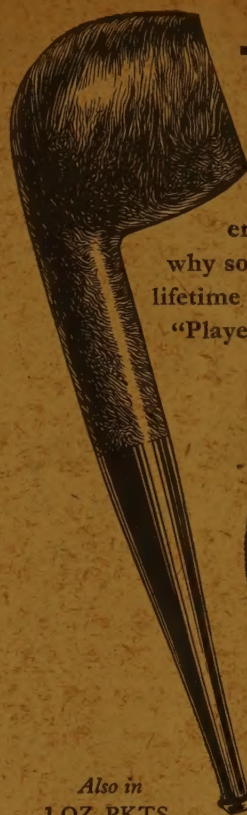
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Broadcast Suggestions for the Housewife

FINNISH-LIVER PIE

LIVER PIE is popular all over Finland, in rich and poor homes alike. Even when made with calf's liver, which is, of course, the best, it is a comparatively cheap dish.

Here are the ingredients for the pie, enough for four people:

- 1 teacup of rice (about six ounces)
- 2 teacups of water and milk (mixed)
- 8 oz. of liver and some bacon fat (minced together)
- 1 egg
- 2 large onions
- 2 oz. of butter
- 3 tablespoons of raisins
- 1 tablespoon of black treacle
- 2 teaspoons of marjoram
- salt
- pepper

Now for the method. First, I should like to tell you of an excellent way of cooking the rice, in which the goodness and nutriment is retained. For any measure of rice, use twice the same measure of salt water. First rinse the rice, then put it, with twice its measure of cold water, in a thick-bottomed saucepan and bring to the boil. Now turn the heat as low as possible, so that there is just a noticeable bubbling going on in the rice. You may have to regulate the heat a few times. In twenty-five minutes—a little longer for a big quantity—your rice is cooked, all water absorbed, every grain separate and not one sticking to the pan.

For the liver pie you cook, in this way, one teacup of rice with two teacups of water and milk mixed, salt added. Leave to cool in the saucepan. Then chop the onion finely, fry it brown in some of the butter, and add to the cooled rice. Add the other ingredients, and do not exchange the marjoram for any other herb, because this gives the dish a special flavour. Do not be afraid of the treacle and the raisins; they will not make the dish sweet, but add their

own particular flavour. Now beat in a raw egg, season, and mix well. You will have to add some water, because the mixture should be of a wet consistency.

Slowly heat the mixture in the saucepan, stirring all the time, but not to boiling point; in this way you save time in the oven. Then pour the mixture into a greased pie dish, dot over with butter, and bake in a moderate oven (Gas Mark 4) for forty-five minutes.

This is a complete dish in itself, no vegetable is needed. Serve melted butter with it, and some cranberry jelly, if you can get it. This adds the final bouquet to the dish. And, incidentally, when I made this recently—with calf's liver—the ingredients came to just 3s. 6d.

EVA ANGELO

HOW TO USE FROZEN MEAT

You have all heard recently that we have plenty of imported meat in the country at present. From the housewife's point of view it is going to be a financial advantage. For instance, I found recently in my shop that imported sirloin and topside were at least 1s. 4d. a pound cheaper than our home-produced variety. The difference on rumpsteak was 2s. 6d. a pound, and on shin of beef 8d. a pound.

Unfortunately, frozen meat deteriorates a little in colour when it is thawed, but it is not an indication of poor quality and taste. It is usually an advantage to have it thawed out by one's butcher ready for cooking, for the thawing is most important. If by chance you buy it partly frozen you must thaw it out properly yourself. It will ruin it if you attempt to thaw it out quickly by artificial heat. Hang it in a current of air for at least twenty-four hours, or until it loses its stiffness and becomes darker in colour. Remember to wipe it before cooking. At this stage it is ready for cooking in the usual ways suited to the particular joint or cut.

Inasmuch as frozen meat has not—to my mind—quite the flavour of our good home-produced meat, it lends itself to those recipes and methods that increase flavour. I need hardly remind you of the familiar beef-steak and kidney pies and puddings and the savoury stews. Then there are the curries, the braised dishes, and such dishes as stewed, stuffed steak.

For the stewed, stuffed steak you need a good slice of rump steak—about an inch thick. Lay it on your board, flatten it out by slapping it with your rolling pin, then spread over it some veal stuffing. Roll it up like a Swiss roll, and tie it round with string. Fry it for a few minutes until it is brown all over, then stew gently in a good gravy. Do not cover it with gravy, for it cooks partly in the steam. Beef olives are equally good. These are small, thin slices of steak, about two-and-a-half inches square, treated in precisely the same way as the stuffed steak.

ANN HARDY

Notes on Contributors

AUSTEN ALBU (page 598): M.P. (Labour) for Edmonton since 1948; Works Manager to a big industrial firm 1930-46; Deputy Director, British Institute of Management, 1948

A. L. GOODHART, K.B.E., Q.C. (page 603): Master of University College, Oxford, since 1951; Professor of Jurisprudence, Oxford University, 1931-51; author of *English Law and the Moral Law*, etc.

RICHARD LLEWELYN DAVIES (page 604): Director of the Division for Architectural Studies of the Nuffield Foundation.

F. S. RUSSELL, C.B.E., F.R.S. (page 609): Director of the Marine Biological Association's Laboratory, Plymouth; author of *The Medusae of the British Isles*, etc.

Crossword No. 1,301.

Bird Song.

By Babs

Prizes (for the first three correct solutions opened). Book tokens, value 30s., 21s., and 12s. 6d. respectively

Closing date: First post on Thursday, April 14. Entries should be on the printed diagram and envelopes containing them should be addressed to the Editor of THE LISTENER, Broadcasting House, London, W.1, and should be marked 'Crossword' in the left-hand top corner

Clues across are normal. Clues down each contain an anagram of a British bird (ten consecutive letters, not necessarily coinciding with the beginning or end

of a word). The bird's name is to be entered in the diagram.

CLUES—ACROSS

1. Moves gently in a case as essential as this (5).
4. May skater be a contriver of hold-ups? (9).
9. Scene of Cato's suicide might almost become the scene of Antony and Cleopatra's defeat (5).
10. Only a little twanger, but it has guts (9).
11. Warm and dry, look (3).
12. Sounds like the Highland chief talking to Lord Ullin's daughter. Graceful creature! (7).
13. The sort of pirate Frederick was (7).
14. Just the backyard for a strong comic character (5).
15. See it go, say I (7).
16. He comes down egg-first (5).
17. Japanese sea-bream. Siamese, too? (3).
18. A Maori fort? Disgusting! (3).
19. Is clean, umbelliferous and medicinal, perhaps (7).
20. A backward glance at Eve in a fistful of fingers (5).
21. Kipchaks when golden (5).
22. A farthing newspaper! That's a practical joke (3).

DOWN

1. The oboe merges not, nor even heeds
2. The brass, percussion, strings and lesser reeds;
3. Chaste on the air its plangent utterance floats,

4. And draws the ear with train of limpid notes.
5. So, 'mid the avian breed, each songthrush coy,
6. To gold transmuted, propagates his joy;
7. All birdsong else is hackwork if he sings,
8. Relating twice (says Browning) all he brings.

Solution of No. 1,299

FIRST MATE					RIGHT HAND				
A	N	P	A	W	W	E	N	A	I
S	T	I	L	L	S	W	I	N	E
T	O	E	K	L	I	Y	U	R	E
R	U	N	L	E	T	C	L	E	G
O	N	G	H	O	D	A	N	R	
N	O	R	M	D	E	T	E	C	T
O	A	L	O	I	V	I	O	L	G
M	A	N	G	O	S	M	E	L	L
Y	G	S	H	R	Y	S	I	C	E
R	E	D	S	T	A	R	T	S	
I	W	H	I	N	C	H	A	T	S

NOTES

Across: 9. (L) S-WIN-E, (R) D-ING-O.
Down: 4. MASK + HIDE = MAD SHEIK (anag.); 5. (L) Hidden, (R) Literal; 6. (L) MANY ROOTS (anag.); 7. (L) W-EIGHT-ILY; 14. (L) 'The Geisha Girl', (R) = CHAUNT (anag.).

Prizewinners: 1st prize: J. N. Worledge (Stanmore); 2nd prize: W. F. Luckett (London, N.3); 3rd prize: J. M. Greenall (Plymouth)

CROSSWORD RULES.—(1) Clues are not normally given for words of two letters. There are no capricious traps. Each competitor is allowed to submit only one solution, but legitimate alternatives are accepted. (2) Collaborators may send in only a single joint solution. (3) Subject to the above rules the senders of the first three correct solutions opened are awarded a book token of the values specified. (4) In all matters connected with the crosswords the Editor's decision is final.

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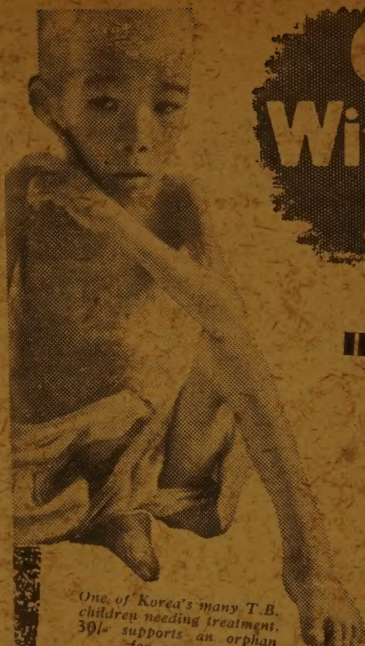
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